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USSR Report

TRANSPORTATION

No. 131

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CIVIL AVIATION

BRIEFS

PLANES REFITTED--Sverdlovsk, Simferopol', Mirnyy--An "IL-18", under the control of a crew from the Ural Civil Aviation Administration, led by the craft's commander, pilot first-class Yu. Opletinyy, landed in sunny Simferopol. But instead of the usual stairway, a conveyor was moved up to the plane; open boxes full of ripe apples from the orchards of Bakhchisaray were moving along the conveyor. About 10 hours later the fruit was delivered to the remote Yakutsk town of Mirnyy where diamond-miners live. This is how Ural aviators are helping to fulfill the Food Program; they are providing people in the Far North with fresh fruits and vegetables. It was people in Sverdlovsk who first conducted the bold experiment with the "IL-18"; they refitted the turbo-prop passenger liner to be a cargo carrier. The "Ilyushin", stripped of its comfortable seats, but with stronger sheathing, fastening systems, and special floorboards, recently made its first long-distance flight beyond the Arctic Circle, carrying a load of vegetables to Chokurdakh and to the Indigirka. Now at the Sverdlovsk Aviation Enterprise there are several more planes like this one, that have served out their usefulness on regular routes, and are now being given a second lease on life. It is truly as if strong new wings had been discovered--wings that the national economy needs so badly. [By V. Zaytsev] [Text] [Moscow NEDELYA in Russian No 32, 8-14 Aug 83 p 4] 9967

BELORUSSIAN AIR ROUTES--Minsk--The fleet of equipment used by Belorussian aviators has been expanded. The TU-154 airliner is now taking off and landing at the "Minsk-2" Airport on the Minsk-Simferopol route. These powerful airplanes will make all the long-distance flights. The switch to what is new equipment for Belorussian aviators was made possible by the completion of the large new airport. This will in turn make it possible to increase passenger turnover by a factor of almost 1.5 during the five-year plan. There are plans to expand the airplane fleet in the future by adding the "IL-86" airbuses. [TASS] [Text] [Moscow ISVESTIYA in Russian 11 Aug 83 p 2] 9967

NEW RUNWAY EQUIPMENT--A new airport cleaning machine has been designed for use in clearing take-off and landing strips and taxiways of snow, dust, and trash, and for blowing water off the surfaces and drying them. There are three pieces of equipment combined on the one machine: a snow plow, a brush rotor, and an air blower. This makes it possible to do thorough cleaning of airport surfaces with a high level of productivity. There are no other machines like it in the world. It replaces a set of snow removal equipment that consists of 7 plow and brush machines and a rotor. The developer and manufacturer of the machine is the "Dormash" [Road Machinery] Scientific Production Association (220736 Minsk,

Ulitsa Khar'kovskaya 103). [Text] [Moscow STROITEL'NAYA GAZETA in Russian 19 Aug 83 p 3] 9967

AIRPORT OPENS--A new airport has opened in Beyneu, a rayon center located to the northeast of Mangyshlak. Mangyshlak Oblast, which is the smallest in Kazakhstan in terms of population, now occupies third place in the volume of air shipments. To the sparsely populated corners of the peninsula airplanes bring not only passengers, but equipment, food products, and other cargo essential to the drillers, geologists, and livestock herders. [TASS] [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 10 Sep 83 p 3] 9967

CSO: 1829/347

MOTOR VEHICLES AND HIGHWAYS

PLANT DIRECTOR RESPONDS TO CRITICISM OF ROADBUILDING MACHINE

Moscow AVTOMOBIL'NYYE DOROGI in Russian No 6, Jun 83 p 28

[Article: "Plant Director Replies to Journal" **--passages between slantlines published in boldface in original**]

[Text] In the article by L. S. Zarubin, A. A. Mnogogreshnov, A. A. Shitsko, and others, entitled "Advanced Equipment for the Roadbuilders of Siberia," as published in our journal (No 1, 1983), certain shortcomings were noted in the design of the set of machines used for the high-speed construction of the DS-110 main highways and the difficulties arising in its operation, difficulties which may be briefly formulated in the following points.

1. The DS-110 set of machines is capable of operating only under conditions when the air temperatures are above freezing.

2. Spare parts are not being delivered on time.

3. It would be feasible to organize guaranteed repair and servicing of the machines.

4. On the DS-105 the jets of the system for spraying foam-type materials often become clogged up.

5. The design of the Solomatin cutter for the transverse seams is not satisfactory to the builders on the production line, and they have improved it based on the suggestions of local efficiency experts.

6. No provision has been made for mechanizing the operations of setting up the expansion joints.

7. It is proposed to equip the DS-111 concrete-placer with an attachment for compacting samples.

/The editors have already received a response to the criticism from the director of the Bryansk Roadbuilding Machine Plant imeni 50th Anniversary of the Great October Revolution, L. P. Vinnikov, and we are acquainting our readers with it here./

1. The limitation placed on operation by the temperature of the surrounding air is caused not by the design characteristics of the machines but by the requirements

of the technology of placing concrete. The technical assignment for the DS-110 set, as approved by USSR Gosstroy, the Ministry of Transport Construction (Soyuzdornii), and other departments, stipulates that the concrete be placed when the surrounding air temperature is no lower than +5°C.

The DS-108 profiler is not connected with the placing of concrete, and it can be used even at lower temperatures. The difficulties with starting the engine during cold weather have been eliminated in the latest modifications of the machines by means of introducing into the design a power unit of the disengaging clutch between the engine and the reduction gear of the pumps. In concluding a routine agreement for technical servicing and current repairs of the machines, the representatives of the construction organizations must include provisions for the units of the disengaging clutches in the list of services to be carried out by the plant.

2 and 3. In the opinion of the plant, the late delivery of spare parts pertains in large degree to the products list of machines operating on the construction of the earthbed (scrapers, bulldozers, dump-trucks, etc.). As regards the machines of the DS-110, providing them with spare parts as well as annual maintenance and repair is conducted by the plant service providing guaranteed servicing of the DS-110 sets.

The following data may be cited to testify that the US-4 machines are being satisfactorily provided with spare parts and with the specified amount of services with regard to technical servicing.

	1980	1981	1982	1983 (Plan)
Spare parts delivered, in thou. of rubles	59.3	72.9	37.2	40.0
Services rendered with regard to start-up, adjustment, and technical servicing of machines, in thou. of rubles	25.0	20.0	5.2	25.0

Obviously it would be more correct to speak not about creating a new service of guaranteed repairs and servicing the machines, but about improving the work of the existing service and providing the operating machines with spare parts.

4. The roadbuilding organizations have used various types of foam-type liquids (pomorol, lacethynol, diluted bitumen, and so forth). As of today, we have still not managed to succeed in proposing a new, more improved jet, suitable for spraying any kinds of liquids. We could advise the builders to maintain the regular tanks of the machines in a cleaner state under the foam-type liquids and to be more careful in filtering the latter during the process of flushing; they should also carry out more frequently the non-labor-consuming of thoroughly cleaning the jets. During the 1983 building season the operation of the jets in spraying various types of liquids will be thoroughly analyzed, and all business-like suggestions by the users will be taken into consideration.

5--7. In the opinion of the plant, the problem of improving the seam cutter merits the attention of the All-Union Scientific-Research Institute of Stroydormash. The technical task of mechanizing the installation of expansion joints and the attachments for compacting samples obviously should be worked out by Soyuzdornii. The proposal by the US-4 efficiency experts with regard to installing the transverse seams can be introduced into production by the plant if a favorable conclusion is reached by Soyuzdornii.

The director of the Bryansk Plant has also informed us that during the next two or three years there will be a planned modernization of the machines of the DS-110 set, and the suggestions with regard to improving their design, as well as the outfitting of auxiliary mechanisms, could be included in the modernization program.

/The editors anticipate responses to the urgent problems set forth in the article entitled "Advanced Equipment for the Roadbuilders of Siberia" from the leading sectorial institutes of the All-Union Scientific-Research Institute of Stroydormash and Soyuzdornii./

2384
CSO: 1829/372

DEPUTY MINISTER ON PLANNED RAIL NETWORK DEVELOPMENT

Moscow PUT' I PUTEVOYE KHOZYAYSTVO in Russian No 5, May 83 pp 2-7

[Article by G. Kh. Savchenko, deputy minister of railways: "Development of the Network of Steel Mainlines"]

[Text] The party and government are constantly concerned about strengthening the material and technical base and improving the operation of rail transportation. The level of its technical support rose during 1976-1980: more than 3,200 kilometers of new line and 3,855 kilometers of secondary routes were put into operation, sections with a distance of more than 4,600 kilometers were changed over to electric locomotion, roads with a distance of about 15,200 kilometers were equipped with automatic blocking and dispatcher centralization, as a result of the development of stations and extensions 2,752 kilometers of station roads were put into operation, and 30,000 switches were equipped with electric centralization.

On the threshold of the 26th Party Congress, the CPSU Central Committee and the USSR Council of Ministers adopted a decree directed toward further improvement of the operation and comprehensive development of rail transportation in 1981-1985. The plan for the 11th Five-Year Plan envisions the startup of 3,360 kilometers of new lines (including the BAM), 5,000 kilometers of secondary and additional mainlines, 6,000 kilometers of electric lines and the equipment of 15,000 kilometers of roads with automatic blocking and dispatcher centralization.

It is typical of the current five-year plan that special attention is being devoted to comprehensive development of rail transportation. In particular, for railroads of Eastern Siberia and the Far East they are to provide electricity for the Karymskaya-Bira section of the Transiberian mainline, they are to construct additional tracks on the Tayshet-Lena and Cheremkhovo-Slyudyanka sections, they are to construct a sorting station on the Krasnoyarsk-Vostochnyy section, and they are to construct and renovate locomotive depots and locomotive and rail car repair plants.

They shall continue to form the Central Siberian mainline and further strengthen it with a new access to the Kuzbass; they will construct secondary tracks and 2-track inserts on the most important sections, for example, Novokuznetsk-Mezhdurechensk; the sorting station will be constructed at Ukladochnyy; electricity will be provided for the Tyumen-Nazyvayevskaya station; and the Tobol and Novosibirsk switchyards and a number of other plants will be expanded and renovated.

Similar comprehensive work is planned for the railroads of Central Asia and Kazkhstan, the Ural and Volga areas, the Northern Caucasus, the Northwest and the Center of the European part of the USSR.

In order to improve housing and cultural-domestic conditions for railroad workers and their families, it is intended to construct 9.2 million square meters of dwelling space, general educational schools to accomodate 56,000, children's preschool institutions to accomodate 51,300, hospitals with 7,700 beds and many other facilities.

During the 2 years of the new five-year plan 1,250 kilometers of lines have been constructed and put into operation in rail transportation (including Ledmozero-Kostomuksha, Masis-Nurnus, and Pogromnoye-Pugachevsk), 1,825 kilometers of secondary tracks (particularly on such heavily travelled sections as Petrozavodsk-Belomorsk, Svecha-Kotel-nich, Buy-Svecha, Bataysk-Krasnodar, Senaya-Saratov, Smyshlyayevka-Zhigulevskoye more, Tselinograd-Kokchetav, Sennaya-Pugachevsk, Alam-Ata-Chu, Mazhdurechensk-Abakan and Uglovaya-Partizansk), and 1,906 kilometers of electric lines (among them, Orsha-Baranovichi, Vologda-Cherepovets-Koshta, Druzhinino-Yanaul, Karaganda-Mointy, Orsk-Orenburg and Bira-Arkhara). More than 5,000 kilometers of railroads are equipped with automated blocking and dispatcher centralization.

Construction is progressing successfully on the Baykal-Amur mainline, where 2,700 kilometers of the 3,500 kilometers of main road have been laid. There are 1,173 kilometers in permanent operation and 1,179 kilometers in temporary operation. The 303-kilometer line, Urgal-Postyshevo, on the eastern section was put into operation ahead of schedule, by the 65th anniversary of Great October. Housing, cultural and domestic, and other facilities are being constructed near the stations and villages for BAM workers.

In 1982 the Baykal-Amur Railroad fulfilled the plan for shipments by 102 percent, and cargo turnover by 116 percent, and they shipped an additional 360,000 tons of cargo, including more than 280,000 tons of hard coal.

Our country's railroads, which account for more than half of the world cargo turnover and about one-fourth of the passenger turnover, are very busy. In his speech at the November (1982) Plenum of the Central Committee, General Secretary of the CPSU Central Committee, Comrade Yu. V. Andropov harshly and justifiably criticized the work of rail transportation. Evaluating the situation with respect to capital construction in the country, Yu. V. Andropov noted that it is necessary to struggle more resolutely against the dispersion of forces and funds on a multitude of objects, to increase the proportion of renovation and modernization, and to reduce the number of new construction projects. The organization of construction work itself is largely unsatisfactory. The shortcomings that exist here from year to year lead to underfulfillment of the plans for the startup of capacities. To bring order into capital construction is one of the central national economic tasks.

The aforementioned shortcomings pertain completely to construction in rail transportation as well. The administrations of the Ministry of Railways, the railroads and the transportation enterprises are still dispersing monetary funds

on a multitude of objects, especially among the so-called "titles of the Ministry of Railways." Frequently the time periods for construction exceed the normative time periods, construction and installation work is stil incomplete and poor in quality, and new capacities envisioned by the plans are being assimilated slowly.

The managers of a number of main administrations of the Ministry of Railways and railroads have not drawn the proper conclusions from the instructions from directive agencies and decisions of the board of the Ministry of Railways concerning the elimination of shortcomings in the organization of capital construction and the concentration of labor and material-technical resources of contracting organizations on the most important startup construction sites and facilities.

The railroads render assistance to contracting organizations in accelerating the shipments of construction cargos, granting them "free periods," and delivering materials for the upper construction of the track. A good deal of track laying, installation, sanitary-technical, finishing and startup work is done by operational subdivisions. But in 1982 on the Sverdlovsk, Southern Ural, Kemerovo, Krasnoyarsk, Eastern Siberian, Transbaykal, Far Eastern, and several other mainlines, the plans for construction and installation work and the assignments for the startup of fixed capital were not fulfilled. On a number of railroads the assignments have been regularly underfulfilled for a number of years now. On the aforementioned roads the trusts of the Ministry of Transport Construction are fulfilling the overall plan for contracting work at a higher level than on facilities for rail transportation.

One of the serious shortcomings is the lack of completeness of construction and the slow assimilation of planned capacities. This especially impedes the operation of newly construction sections. Thus on the Surgut-Nizhnevartovsk, Muraptalovo-Orenburg, Pogromnoye-Pugachevsk, Demnya-Usinsk, Masis-Nurnus lines the construction of locomotive facilities and cargo yards is proceeding slowly, and they are behind in the development of stations and housing and cultural-domestic construction.

The situation is equally poor with respect to the building of facilities for locomotives and railcars that were planned according to titles of secondary roads, electrification of the lines and the development of centers and stations.

A large part of the new lines and secondary tracks (90 percent), residential buildings and facilities for cultural and domestic purposes (80 percent) have been accepted by state commissions for operation during 1981-1982 with good and excellent evaluations. At the same time certain construction projects and facilities have been released with deviations from the plans, construction norms and rules, and with unfinished work. This was the case with the construction of the landfill dam for secondary tracks of the Inta-Pechora-Rybnitsa section of the Northern Railroad and the tertiary tracks of the Chishma-Kuybyshevskaya section, the bridges across the Akul'shetka river to the Tayshet station and the Izh river (according to the title for the development of the Agryz station of the Gorkiy Railroad).

Unfortunately, there are cases where residential buildings and service-technical buildings with incomplete work, and incomplete utilities are accepted for operation, and the quality of construction work remains low. The trusts of the Ministry of Transport Construction allow the largest number of violations when introducing residential buildings on the Northern, Oktyabr, Moscow, Sverdlovsk, Krasnoyarsk, Far Eastern, Western Kazakhstan, and Tselinnaya Railroads. The railroad construction trusts of the Northern Caucasus, Northern, Volga and Transbaykal Railroads release many residential buildings for operation with only satisfactory evaluations.

The main branch administrations of the Ministry of Railways, the railroads and their divisions should make stricter requirements on construction organizations to improve the quality of construction and assembly work and to increase the degree of readiness of the facilities that are submitted for acceptance. It is necessary to increase the responsibility of state acceptance commissions.

Along with organizations of the Ministry of Transport Construction, which perform about 80 percent of the overall volume of construction and installation work, a large contribution to strengthening the material and technical base of rail transportation is made by railroad construction and assembly trusts. Du ring the years of the 10th Five-Year Plan they put into operation about 200 kilometers of secondary tracks on stages which limit the handling capacity of the railroads, and they performed work for developing and lengthening the receiving and dispatch tracks at 310 stations, having constructed 635 kilometers of station tracks. Moreover, they put into operation 159 facilities for locomotives, 128 for railcars and 59 for tracks, as well as 26 stations, 52 container areas, 136 facilities for trade and workers' supply, more than 3 million square meters of dwelling space, general educational schools to accomodate 20,000, preschool institutions to accomodate 21,300, and hospitals with 2,200 beds.

The majority of railroad construction trusts are operating steadily and keeping up with the established assignments. Here one must take note primarily of the construction workers of the Alma-Ata, Transcaucasian, Eastern Siberian, Central Asian and Moscow Railroads.

During 1981-1982 the volume of contracting work performed by railroad trusts amounted to more than a billion rubles. Prompt provision of the construction sites with elements made of reinforced concrete that were produced by enterprises of the trusts' construction industry contributed to the success of the construction workers. Now the annual capacity of these enterprises amounts to more than 1 million cubic meters of reinforced concrete: foundation blocks, stairwells and landings, dividers, panels or floors between storys, crane beams and ceiling beams, and reinforced concrete girders with spans of 18 and 24 meters. This makes it possible to raise the level of prefabrication in construction.

The largest enterprises that produce reinforced concrete have been constructed at the stations of Shchurovo, Lodeynoye Pole, Yidino, Syzran', Vereshchagino, Osnova, Chelyabinsk, Avdeyevka and Mikhaylo-Chesnokovskaya. Recently a plant was reconstructed at the Post-Volynskiy station, and a new plant for reinforced concrete elements was constructed at the Ilanskaya station of the Krasnoyarsk Railroad and a plant for large-panel housing construction in Khabarovsk.

The bridge organizations of the railroad construction trusts have made a large contribution to improving the bridges and strengthening the landfill dam. During the past 2 years the bridge convoy has installed new reinforced concrete structures on 790 small bridges, and they have replaced worn-out metal span structures with an overall weight of 11,300 tons on 158 medium-sized and large bridges. Additionally, they have constructed 165 water outlet pipes, 38 pedestrian bridges and tunnels, 28 overbridges and a large amount of bank reinforcement and anti-sliding structures with a cost of more than 28 million rubles. Capital repair on engineering facilities has made it possible to remove 155 distance barriers which restricted the speed of the trains.

The great achievements of the construction workers have become possible because of the application of advanced technology and scientific organization of labor. Thus on the Far Eastern Railroad the collectives of the Mosttonnel'remstroy trust and its subdivisions, TMO-10 and MSP-18, have completed the renovation of 4 tunnels, and the work was done 24 hours a day without interrupting the traffic of the trains and in short time periods. In the Lagar-Aul'skiy tunnel they used advanced technical equipment and technology for disassembling old backups and constructing new ones made of reinforced concrete. This made it possible to eliminate impediments to the movement of electric trains on the Arkhara-Bira section.

On the Transbaykal Railroad, in order to replace 5 worn-out metal spans structures across the Bolshoy Neverriver, the plan envisioned 2 time intervals for each of them, each lasting 12 hours, and the utilization of 2 YeDK-1000 cranes. But MSP-58 did the replacement with improved technology, using a GEK-80 console crane. They manufactured special adapters on the spot for trussing the old parabolic span structions. They needed only a 9-hour time interval to reconstruct each span. A large amount of assistance was rendered to the bridge convoy by the Orgtekhstroy trust of the main administration for capital construction of the Ministry of Railways and MO-3 of the capital mainline.

On the Dneprovsk Railroad, MSP-57 and the Nikopolsk track maintenance district replaced the span structures on the bridge across the Chertomlyk river on the section of Kantserovka-Apostolovo and placed a ballastless bridge road across them. Because of the careful preparation and the efficient use of the time intervals, this work was done with a considerable reduction of the amount of time during which the route was closed.

MO-3 has repaired the underwater part of the supports of the bridge across the Moscow river according to new technology. Here they used stock elements made of hollow metal frames according to the design of the Giprotransput' Institute (inventor--engineer K. D. Savin). In addition to increasing the handling capacities of the bridges, in 1981-1982 MO-3 constructed and renovated 7 pedestrian bridges at suburban stations and stopping points of the Moscow center. The Zhukovskiy overbridge over the mouth of the Moscow-Paveletskaya station, the northern overbridge over the Yaroslav passageway and overbridges over Staroobryadcheskaya and Bakuninskaya Streets were reconstructed.

Recently road construction organizations have begun to apply more extensively a progressive method of labor organization--the brigade contract. In 1980 490 autonomously financed brigades performed construction and assembly work valued at 66.4 million rubles (15 percent of the annual volume). A year later the number of such brigades had increased to 558. They assimilated 73.8 million rubles. The annual output per 1 worker amounted to 12,050 rubles, a 1.3-fold increase over ordinary brigades, and labor expenditures decreased by 135,000 man-days, or by 15.7 percent of the planned indicator.

But still the rates of dissemination of the brigade contract do not satisfy us. The Ministry of Railways has established for all trusts differentiated assignments for 1983-1985 which envision increasing the proportion of the brigade contract to 55 percent.

The USSR Gosstroy and Stroybank have established a new policy for keeping accounts between the client and the contractor for the performance of construction and installation work according to the commercial construction product, that is, in turns of the enterprises, sections, startup complexes and facilities that have been released for operation and prepared for producing products, or according to the services rendered, on the basis of a document for acceptance for operation which is signed by the state acceptance commission. The value of the buildings and structures that were prepared for producing products or rendering services that are part of the enterprises, sections or startup complexes--if their operation is necessary and possible before the completion of the construction of the enterprise for the startup complex as a whole and the introduction of this building or structure is envisioned by the approved planning estimates and intraconstruction title lists--is paid for when they have documents from the working commission that are approved by the clients. A commercial construction product that is submitted for payment should correspond in cost both to the makeup determined in the plan and the intraconstruction title list.

All construction organizations of the Ministry of Railways have already been changed over to the new policy for keeping accounts.

Under the 11th Five-Year Plan it will also be necessary to gradually change over to planning labor productivity in construction and installation organizations according to the normative conventional net output (NUChP), which reflects more precisely the changes in labor expenditures. During 1980-1982 the Ministry of Railways conducted preparatory work for changing construction organizations over to planning labor productivity according to the NUChP. This changeover is to be completed in 1983-1985.

Construction Norms and Regulations III-3-81 ("Acceptance for Operation of Facilities With Complete Construction") includes a number of new requirements. Thus one can not accept production facilities for operation without a document signed by members of the commission who represent agencies of state sanitary supervision and technical inspection of labor of the corresponding central committee or trade union council, and also the trade union organization of the client (builder) or operating organization. Objections of individual members of the commission must be considered with the participation of agencies represented by these members until the acceptance document is approved.

Facilities for which the time periods for consideration and approval of the documents of the state commissions have expired (up to 1 month after the signing of the documents for facilities for production purposes and no more than 7 days for facilities for housing and civil purposes) are considered unacceptable for operation and another commission is appointed for them.

Previously it was permitted to accept facilities for production purposes with incomplete work that did not impede their normal operation and did not deteriorate the sanitary and hygienic conditions or make labor unsafe for the workers. Additional time periods were established to eliminate these shortcomings. In keeping with the new requirements, all incomplete work and defects revealed by workers of the commission must be eliminated before the appointment of the state commission (with the exception of planting greenery on the territory and constructing the upper layer of covering of sidings and sites for facilities for housing and civil purposes which are released during the winter).

It is very important to have prompt and complete performance of the function of the client by branch administrations of the Ministry of Railways, services and divisions for capital construction of railroads, and other transportation organizations with respect to allotting plots of land and clearing structures from them, providing planning estimates for the facilities that are being constructed, concluding contractual agreements and formulating the financing of the work, delivering technical and power equipment, and hooking up the facilities to the existing external utilities.

These problems are resolved best by the main administrations for electrification and energy engineering, signalization and communications, and also by the Belorussian, Donetsk, Central Asian and certain other railroads. This contributes to the assimilation of the capital investments that have been allotted and to the startup of the facilities.

But on the Moldavian, Odessa, Sverdlovsk, Kemerovo, Volga and Oktyabr Railroads, because of the poor organization of the work and the tardy solutions to problems of carrying out the functions of the client, the plans for capital investments and the assignments for the startup of fixed capital have been underfulfilled throughout recent years.

Along with performing the functions of the client, the railroad services, through the efforts of departmental line enterprises, perform some of the installation, startup and adjustment and other work related to the startup of construction projects, on a subcontracting basis with organizations of the Ministry of Transport Construction and railroad construction trusts.

Subcontracting work is being conducted successfully by services of the Belorussian, Northern and Alma-Ata Railroads. But on the Gorkiy, Moldavian, Northern Caucasus, Transcaucasian, Volga, Kyubyshev, Southern Ural, Eastern Siberian and Far Eastern Railroads these plans are not being fulfilled.

In the network as a whole the plan for subcontracting work for organizations of the Ministry of Transport Construction have been fulfilled by services for electrification and power engineering by only 74.3 percent, and by signalization

and communications--66.5 percent. Track services handle this task better than others--by 93 percent, but they too have arrears.

The practice of organizing interbranch competition of the collectives of the Moscow, Alma-Ata, Gorkiy, Belorussian and other railroads, contracting organizations and planning institutes of the Ministry of Transport Construction is becoming increasingly widespread. The Ministry of Railways, the Ministry of Transport Construction and the Central Committee of the Trade Union of Rail Transportation Workers and Transport Construction have approved business cooperation among operations workers and contracting and planning organizations, which is directed toward implementation of the commitments that have been made and early startup of capacities and facilities in keeping with the program for improving the work and comprehensively developing rail transportation.

As for the plan for capital construction for 1983, it envisions the startup of a new railroad line between Surgut and the Kholmogorskoye deposit (201 kilometers) and 715 kilometers of secondary tracks on busy sections. It is intended to change 1,050 kilometers of lines over to electric locomotion, and with the startup of the Barnovichi-Brest section (204 kilometers), by the end of this year electrification will be completed on the section of Moscow-Minsk-Brest, with a distance of 1,100 kilometers. Dispatcher centralization and automated blocking will be provided on 2,100 kilometers. There will be additional track development of such large centers and stations as Agryz, Gorkiy-Sortirovochnyy, Batevo, Samtredia, Penza-III, Kustany, Tobol and Khabarovsk-II.

For further improvement of housing and social-domestic conditions for railroad workers, in 1983 it is planned to construct 1.4 million square meters of overall dwelling space, children's preschool institutions to accomodate 6,700, general educational schools to accomodate 10,600, hospitals with 1,000 beds, and a number of other facilities.

On the Baykal-Amur mainline it is intended to begin temporary operation of the Baykal tunnel, to being the schedule for laying the Severo-Muyskiy, and to continue preparations for the introduction of 1,442 kilometers of railroad by the end of the five-year plan.

As in the past, in 1983 railroad construction trusts have been assigned almost half of the volume of housing and cultural-domestic construction, and also work related to further technical equipment of the main branches of the railroads. Construction workers of the Gorkiy Railroad are faced with an especially difficult task--capital repair of the tunnels on the Chernaya Rechka-Krasnoufimsk section. In order to accelerate the buildup of the lower part of the lining of the tunnel made of prefabricated reinforced concrete blocks (7,063 cubic meters(, the pressure application of the cement solution over the lining and its strengthening with sputtering-concrete, it was decided to transfer the traffic of the trains to the Polukhinskiy bypass. Construction workers and railway engineers, working 24 hours a day, must prepare the tunnel for electric locmotion within a year and a half. Gorkiy workers will have to improve the technology for restructuring the lining, using new mechanisms. In order to permit return movement and completion of the processing of the rock, it is necessary to use hydraulic wedges, a cutter-loader combine with a drum head of the working part,

and bulldozers. Track laying cranes for installing blocks of linings that are converted to electric drive, and also machines with diesel engines that are equipped with neutralizers of exhaust gases, and so forth will help to reduce the gas content in the air of the tunnels.

Road construction workers must show prompt concern for providing utilities in the tunnels (water and air lines, energy and water supply), warehouses and areas for extra cement and fillers; and they must prepare a "reserve" of reinforced concrete blocks according to the plan.

In order to help the Gorkiy workers, work section TMO-2 of the road construction trust of the Transcaucasian Railroad is being restationed and the Mosttonnelremstroy trust of tunnel workers of the Far Eastern Railroad is being attached to them in order for the assignment of the Ministry of Railways to be fulfilled on schedule.

The adjustment of the plan for capital investments for 1983 (taking into account the actual fulfillment of the asisgnments for 1982) has been completed. Organizational and technical measures are being developed, which are directed toward introducing the most important startup projects and facilities. At the beginning of February of this year at an expanded meeting of the board of the Ministry of Railways and the Ministry of Transport Construction, they considered, in light of the decisions of the November (1982) Plenum of the CPSU Central Committee, the question of measures for providing for fulfillment of the plan for capital construction and the assignments set for 1983 for the startup of production capacities in rail transportation. Railroad workers and transportation construction workers must do everything necessary in order to implement the decisions of the Plenum.

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PROBLEMS, PROSPECTS IN RAILCAR DESIGN, CONSTRUCTION

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/Article by A. I. Rechkalov, director of the All-Union Scientific Research Institute of Railcar Construction, candidate of technical sciences: "Railcar Construction: Problems and Prospects"/

/Text/ The successful operation of rail transportation in shipping national economic cargo depends largely on the level of development and the technical condition of the stock of railroad cars. Providing it with an abundance of highly efficient, durable and reliable rolling stock which requires less expenditures and time as well as technical service contributes to more complete and prompt satisfaction of the needs of the railroads for loading resources, to acceleration and improvement of the quality of the delivery of cargos, and to successful fulfillment of the established plans for shipments.

The collective of the All-Union Scientific Research Institute of Railcar Construction (VNIIV), having celebrated its 50th anniversary this year, and workers of railcar construction plants in conjunction with specialists in rail transportation are constantly working to improve the fleet of cars, to improve its structure, and to create progressive new designs of cars that meet modern operating requirements. During the past period of its existence domestic railcar construction has become a well developed branch of industry and has accumulated rich experience in developing and constructing cargo, passenger and refrigerated cars, improving the technical and economic indicators and increasing their output. Suffice it to note that while in 1934 our country manufactured 26,800 two-axle cars, in 1975, for example, the output of mainline cargo cars amounted to more than 70,800 and they had four axles.

Railcar construction workers are faced with responsible tasks in the modern stage. We shall discuss the main ones in greater detail, since their successful fulfillment will contribute to further improvement of the operation of the country's transportation conveyor.

Cargo Cars

In recent years the fleet of cargo cars has been regularly augmented and qualitatively updated. Car production produced by domestic enterprises, as a rule, is on a level with worldwide railcar construction and meets the basic requirements for the operation of railroads in the USSR, taking into account the increased intensiveness of the operation of the rolling stock.

Because of the introduction of progressive designs, the average cargo capacity of the railcar fleet of the main railroads has increased by almost 16 percent as compared to 1960 and amounts to approximately 66 tons. In 1980 the maximum load on wheeled cargo cars on the rails was increased to 23.25 ton-force (228 kN), which made it possible to increase the calculated gross weight of a four-axle car to 93 tons, with a corresponding increase of its cargo capacity. Cargo cars that are being constructed at the present time because of their design make it possible to form cargo trains with a gross weight of up to 8,000 tons and to move them at a speed of 100-120 kilometers per hour.

One should consider the complete changeover in 1982 to the output of all new types of mainline cargo cars with bearings to be a great achievement of domestic railcar construction. The changeover to roller bearings essentially raises the technical level of the rolling stock and produces a significant economic effect as a result of a reduction of the expenditure of energy on pulling the train, a reduction of the need for lubricants and a reduction of labor expenditures on servicing the cars during operation.

At the present time railcar builders when selecting parameters and design plans for new cargo cars proceed from the following main requirements. The new cars should correspond as much as possible to the structure and properties of the cargo that is being shipped, they should have increased durability during operation, increased cargo capacity and increased loading on route, and they should provide for preservation of the cargo being shipped and all-around mechanization of loading and unloading work.

Increasing the linear load as a result of changing over to the output of eight-axle cars should be regarded as one of the most promising areas for increasing the handling capacities of the roads. They make it possible to form heavy trains with the existing distance of station routes. Unfortunately, the creation of capacities for their production is considerably behind the earmarked deadlines.

In the future further increasing the cargo capacity of four-axle wagons will involve an increase of the axle loads to 24-25 ton-force and a changeover to the use of increased registered clearances 0-T, 1-T and Tpr. for eight-axle semi-cars and tank cars it is expedient to use clearances Tpr (Tts) with limited axle loads in the range of 22-22.5 ton-force.

In 1983 it is intended to changeover completely to the output of four-axle all metal covered universal cars with an axle load of 23.25 ton-force (228 kN) with improved quality and increased durability and reliability, whose design is being mastered by the Altay car construction plant along with cars with wooden facings. These cars have a removeable roof with a lining that is right next to the sheets of roofing, which makes it possible to practically prevent damage to the lining during loading and unloading and provide for greater suitability of the cars for repair.

As research shows, a promising design of a covered car should have a proportional volume of the body of about 2.45 cubic meters per ton (with existing cars this is less than 1.8 cubic meters per ton). Proceeding from this, on an order from the

Ministry of Railways, we have developed a design and manufactured an experimental model of a closed all-metal car with a volume increased to 140 cubic meters and a length along the coupling axle of 16.97 meters. It has expanded doorways, a polymer covering of the internal metal surfaces, and it is equipped with the necessary devices for fastening down the cargo. The main operational advantage of this closed car is the increased proportional volume of the body, which provides for an increased coefficient of the utilization of the cargo capacity and increased average actual loading of the car.

As the fleet of specialized railcars develops in the future and the volumes of container shipments increase, the structure of the cargos shipped in universal covered cars will change essentially, and this rolling stock will acquire actually specialized features. Therefore for future operating conditions, in order to increase the efficiency of covered cars, it would be expedient to consider the possibility of constructing them on a larger scale with increased axle loads.

An efficient direction for the creation of future designs of universal four-axle platforms is to increase their length to 19.62 meters along the coupling axles. The use of this kind of platform will make it possible to increase the static load 1.5-fold and to increase the average utilization of the cargo capacity to 85 percent as compared to 58 percent with existing platforms that are 14.62 meters in a clearnance of 0.1-T. The assimilation of the output of longer platforms, with which fewer are required to ship the same volume, will also produce a savings on metal as a result of the reduced need for carts, automatic coupling and braking equipment, and so forth. The tests of experimental models of longer platforms when shipping the most varied kinds of national economic cargos confirmed their great effectiveness. But because of the fact that the organization of the production of these platforms at the Dneprodzerzhinsk railcar construction plant involves a certain reduction in their output (in proportion to the increased length), the question of manufacturing them has not yet been finally resolved.

Special requirements are placed on the design of semi-cars, which in the future will continue to be the main type of rolling stock. On an order and in keeping with requirements of the Ministry of Railways, a design has been developed and preparations are being made for mass production at the Kryukovo railcar construction plant of four-axle semi-cars with end beams that are adapted for sets of bumper equipment. The design of this semi-car, as compared to the series-produced car, is somewhat stronger, taking into accout the axle load of 23.25 ton-force and the action of the longitudinal forces on the bumper equipment. The Zhdanovtyazhmash production association has been producing four-axle semi-cars with deep beds for many years now. They provide for safe shipment of bulk cargos of small pieces. At the present time it is intended to produce improved semi-cars of this type with improved technical and economic parameters.

It must be noted that four-axle semi-cars can be designed more efficiently with a clearance of 0-T (instead of the 01-T clearance that is presently being used). This provides the necessary proportional volume of the bed (no less than 1.12 cubic meters per ton) with an increased cargo capacity and increased linear load. When utilizing the clearance o-T (or 1-T), in our opinion, it is promising to use

the design of the four-axle semi-car with an axle load of up to 25 ton-force (245 kN). Research of the VNIIV has established that increasing the axle load of semi-cars with a clearance of 0-T leads to reduced national economic expenditures, even with increased expenditures on maintaining the tracks, as compared to semi-cars with a clearance of 01-T and an axle load of 23 ton-force. At the present time we are developing a promising design for a four-axle semi-car with expanded clearance. But the question of the axle load for this semi-car has not been finally resolved by the Ministry of Railways. Such a semi-car can have a 7-8-ton increase in cargo capacity with an increase of the gross linear weight of 10-12 percent.

In recent years at the Stakhanov railcar construction plant they have created a base for producing eight-axle universal semi-cars with hatches in the floors and fixed end walls with a clearance of 1-T. With a length along the coupling axles of 20,5000 millimeters and a volume of the bed of 141 cubic meters it can have a cargo capacity of 129 tons. The introduction of these eight-axle semi-cars, whose main advantage is the increased (25 percent) linear load, will make it possible to essentially improve shipments in areas that have the most cargo. In our opinion, it is most effective to construct eight-axle semi-cars with an expanded clearance of T or Tpr with an axle load of about 22-22.5 ton-force. The expenditures in this case are reduced by almost 1.5 percent as compared to the semi-car with a clearance of 1-T.

It is known that losses of coal when it is shopped in universal semi-cars with hatches in the floor sometimes reach 1.5 tons per loaded car. There are also significant losses when shipping ore concentrates and other bulk cargos that are in small pieces. One of the effective measures for reducing losses of these cargos is to ship them in semi-cars with a closed bed. Research of the All-Union Scientific Research Institute of Rail Transportation (VNIIZhT) shows that by 1990 circular routes formed with specialized semi-cars with closed beds can be organized to ship up to 500 million tons of coal and ore cargos a year without increasing the amount of rolling stock that runs unloaded. With these shipments, in our opinion, it would be expedient to utilize large cargo specialized semi-cars with closed beds, that are made with a more spacious clearance of T or Tpr and have a linear gross weight at the level of 10.5 tons per meter. At the present time the Ministry of Railways is ordering only eight-axle semi-cars with a clearance of 1-T and hatches in the floor with a linear load of about 8.5 tons per meter.

For petroleum and gasoline tank cars with axle loads of up to 23.25 ton-force, it is expedient to create four-axle tank cars with a proportional volume of up to 1.4 cubic meters per ton with a clearance of 1-T, and eight-axle cars with a clearance of Tts. These tank cars will be more effective when they are used especially for gasoline. While retaining the registered clearance of modern four-axle tank cars of 02-T, an increase in the volume of the boiler and the axle load is not very effective since because of the close clearance the small linear volume of the boiler does not make it possible to properly provide for increasing the linear load. An increase in the capacity of the boiler just as a result of the length of the tank car is ineffective because of considerations of durability and the proportional metal-intensiveness of the design. At the present time the Zhdanovtyazhmash has manufactured an experimental model and

is testing an eight-axle tank car for light petroleum products with a cargo capacity of 125 tons and with a proportional volume of 1.2 cubic meters per ton in a clearance of 1-T with a diameter of the boiler of 3,200 millimeters, and it also has improved design and parameters.

For transferring heavy powdery cargos (cement, apatite concentrate, and so forth), whose shipment volumes are extremely great, it is promising to assimilate the output of tank cars of the bunker type with a clearance of 1-T. An experimental model of such a tank car with a cargo capacity of 64 tons with a clearance of 02-T and a proportional volume of 0.917 cubic meters per ton has been manufactured and tested by the Zhdanovtyazhmash production association. The design form of the boiler of the tank car provides for gravitational movement of the cargo toward the unloading devices and makes it possible to apply compact aeration units and to provide for effective loading of these cargos with minimal residuals.

The main directions for the development of the country's national economy under the 11th Five-Year Plan and the period up to 1990 envision improving the structure of rolling stock and providing for more extensive specialization of it. Based on this, one of the most important directions for the development of railcar construction is expansion of the production of highly effective specialized cars, whose quantity in the fleet of the Ministry of Railways is to be increased to 30-35 percent in the future instead of 10 percent in 1980. As we know, at the present time, a whole family of self-loading car-hoppers are being produced and operated on the railroads for shipping grain, mineral fertilizers, cement, peat, pellets, fuel agglomerate, coke, industrial carbon, chips and coal. Modern car-hoppers are distinguished by an efficient form and design of the bed, effective devices for opening and completely closing the covers of the hatches of the unloading bunkers. Extensive application of self-unloading car-hoppers, as practice shows, produces a significant technical and economic effect and makes it possible to release a large number of workers employed in loading and unloading operations.

Further improvement of car-hoppers is being carried out in the direction of standardizing them and creating car designs with increased load from the axle to the rail. The technical assignment for designing car-hoppers with an axle load of 25 ton-force for shipping cement, mineral fertilizers, grain and pellets at the present time is being coordinated with the Ministry of Railways.

On the basis of the developments of the VNIIV a specialized platform is being produced in series for shipping large-cargo containers. Its distinguishing feature is the relatively low coefficient of packaging and the high effectiveness of the utilization of the cargo capacity. For the future, on an order from the Ministry of Railways, a platform is being created for shipping large-tonnage containers and wheeled equipment. During past years at the Kalinin railcar construction plant they have been manufacturing in series specialized two-axle cars for shipping passenger vehicles, which makes it possible to shop 15-17 motor vehicles of the Moskvich and Zhiguli type or 8 of the Volga type. At the present time, in keeping with results of scientific research work conducted by the institttue, a closed car with a clearance of 1T is being created for shipping 10-12 passenger vehicles. The experimental model of this was

manufactured at the Kalinin railcar construction plant. The most promising and effective, in our opinion, is the design of the two-axle covered car for shipping passenger vehicles with clearances of Tpr and T with a two-axle load of 18 vehicles. The technical assignment for designing this car was developed by the institute on an order from the Ministry of Railways.

In order to accomodate the growing volumes of shipments of cargo from the timber, pulp and wood processing industry, new designs of cars have been created, including platforms for shipping round timber (timber materials with a length of from 4.5 to 20 meters) without using special fasteners, cars for industrial chips with a capacity of 58 tons and a volume of 154 cubic meters, equipped with special protective screens for reducing losses of chips from the wind, special closed cars for shipping paper in rolls of various diameters and widths on the basis of the series produced all-metal closed car. In the future it is intended to provide for maximum standardization of the platforms for timber materials with the series platform for shipping full-length logs, whose principle distinction is the design and the location of the supports for fastening the cargos.

In recent years the institute in conjunction with railcar construction plants has also developed a whole series of other specialized cars that have improved dynamic qualities, and greater durability and reliability of the design elements. One can include among them, in particular, cars of the bunker type for shipping flour and cars for transporting polymers, whose designs are standardized with the exception of the unloading system. Also of interest are specialized cars for shipping cold rolled steel in rolls and packets without packaging (they provide for shipping practically all types and sizes of steel without using special devices for fastening the rolls and packets), and also hopper cars with improved designs that are 10 meters long for shipping hot pellets.

Passenger Rolling Stock

In our country rail transportation is the most widespread means of transporting passengers, and it will continue to play a leading role in the future. Taking this into account, questions of further improvement of the fleet of passenger cars are important.

During the period since 1965 the fleet of passenger cars has increased by more than 60 percent. At the present time it consists of all-metal cars of the following types: coaches without compartments, coaches with compartments with 4 and 2 seats and semi-upholstered divans; first-class trains with 4- and 2-seat compartments; first-class and coach cars of the mixed type, in which part of the compartment has upholstered divans and part of it has semi-upholstered divans; first-class cars for international travel with a clearance of RITs; interoblast trains with armchairs; restaurant cars, postal, baggage and postal-baggage cars.

In terms of their basic technical parameters, their durability and heating qualities, the passenger trains of the USSR are as good as any foreign analogs. At the same time there are arrears with respect to the comfort of the travel of the passengers, the quality of the finishing and the metal-intensiveness of the designs.

All of the passenger cars that are pulled by locomotives which are produced by domestic industry and those that are imported from the GDR are intended for a speed of 160 kilometers per hour, and have a durable metal welded carriage, standardized running parts and reliable braking equipment. The cars are equipped with combined electric and coal heating, which provides for a higher level of comfort for the passengers and better conditions for the work of the service personnel. The introduction in the rolling stock of an automated system for controlling the temperature of the air in the car with combined heating, which was developed by the VNIIV, makes it possible to save 15,000 kilowatt-hours of electric energy in one car during the cold season, and the introduction of an improved converter network in the system of heating makes it possible to increase the heat productivity of the heating equipment by 15-20 percent with a simultaneous reduction in the expenditure of metal. Passenger cars are equipped with a system of automatic ventillation with warming of the air during the winter and the transitional periods. Some of the cars have air conditioning. The energy supply is provided from a generator under the car with a drive from the wheel axle.

Further improvement of the design and a rise in the technical level of cars are being carried out at the present time in the following main directions: reduction of the material-intensiveness of the cars, increased economy, productivity and reliability, improvement of the heating qualities, increased comfort, modernization of the standard running part of the cars in order to improve the smoothness of the ride, extensive application of fire-resistant materials for the interior equipment of the cars, and low-alloy and nonrusting (without nickel) steels for the bodies.

At the present time the Kalinin railcar construction plant has developed a design for a light-weight passenger car with a body made of nonnickel, nonrusting steel. This will make it possible to reduce the weight of the body by 2.8 tons and considerably increase the economy of the car during operation since no capital repair will be required throughout the entire service life of the body.

Testing is in progress on a new car with compartments which has air conditioning and a system of centralized energy supply, drawing energy from the locomotive, and an individual static transformer with a capacity of 23 kilowatts. The introduction of such a system of energy supply for the cars will make it possible to eliminate the component for drawing on the generator under the car, which is not reliable enough, and to increase the efficiency factor of the electricity supply system from 0.3-0.4 to 0.5-0.6. But for extensive introduction of the centralized system it will be necessary to find a comprehensive solution to a number of problems, above all, those related to the creation of steam engines and cars that are equipped with devices for centralized electricity supply, renovation of the system of centralized blocking on sections without electricity, and so forth.

This year it is intended to begin the production of a new car without compartments. It has a new individual system of electricity supply which includes a low-revolution generator, a special accumulator battery, a nonreducing TK-2 generator drive, an explosion-safe accumulator box with wheeled carts for the

accumulators and a number of other original devices which provide for more reliable operation of the electrical equipment in the cars and better traveling conditions.

An analysis of the structure of the fleet of passenger cars according to types, which was conducted by the VNIIZhT, showed that at the present time cars without compartments comprise about 50 percent of the fleet, those with compartments --about 35 percent, first-class cars of all categories--5.8 percent, and cars of the interoblast type--9.1 percent. It is intended that the structure of deliveriesies of sleeping cars should change in the direction of increased output of cars of the roomette type and a corresponding reduction in the production of cars of the open (without compartments) type. At the same time the annual increase in the volume of passenger transportation and the practically complete utilization of the handling capacities of the lines in a number of the main directions require the use of highly productive passenger cars. In this connection the Ministry of Railways intends in the next 10-20 years to order cars that make it possible to maintain the handling capacity of the trains at the necessary level.

The most widespread passenger car at the present time is the sleeping car without compartments, which handles more than 60 percent of the local passengers, and more than 50 percent of the long-distance direct passengers. In spite of the constant technical improvement of this car and the introduction of new materials and modern electrical equipment, it does not fully meet current and future requirements from the standpoint of providing comfortable traveling conditions. The main shortcomings of the car are well known--the lack of minimum insullation of the passengers, the inadequate sizes of the sleeping divans, the lack of places for the passengers' outer clothing, and so forth. On the other hand, the more comfortable cars--those with compartments, first-class and sleeping cars--do not have enough room, and they have different designs which brings about the low level of standardization and interchangeability of components and parts, makes it necessary to maintain a large reserve fleet of cars, complicates repairs, and narrows the possibilities of specializing production and applying progressive technology for repair.

Because of this there is now a need to revise and improve the types and sizes of passenger cars, taking future requirements into account. The corresponding proposals have been made repeatedly in the works of the VNIIV, VNIIZhT and the Institute of Comprehensive Transportation Problems. The work for improving the types and sizes is based on the design of a future type of passenger cars which meet the following basic requirements: increased handling capacity of the passenger train, a higher overall level of comfort of travel for the passengers, and maximum standardization of the main design solutions of the body, components and equipment. Moreover, on the basis of a generalization of the results of research and development that has been conducted as well as analysis of the designs of the best foreign cars, two main tendencies of modern railcar construction have been revealed: the use of longer cars, which are 26-26.5 meters long, and the use of two-level cars.

In the future it is intended to augment the passenger fleet with cars that are 26.5 meters long with 4-seat compartments. At the same time the design developments and the technical and economic analysis that have been conducted show that replacing all sleeping cars with these will not provide for the predicted volume of transportation since then the handling capacity of a passenger train that is equally long will be reduced by 10-14 percent. Taking this into account, the Ministry of Railways has issued an order for the Kalinin railcar construction plant to create an experimental car that is 27 meters long with an increased capacity, that is, of the open type. But even if these are used the capacity of the trains can be increased by no more than 4-6 percent. Moreover, the overall level of comfort for the passengers (taking into account the retention of the open type of layout for cars with increased capacities) will not improve significantly.

A higher level of comfort with a simultaneous increase in the handling capacity can be achieved by using a 3-part compartment layout (cars of this type are being used in a number of foreign countries). Research of the VNIIV showed that, taking into account the higher clearances of domestic railroads, one can create comfortable conditions for the travel of passengers in 6-seat compartments. Work has also been done to create cars with 3-seat compartments (corresponding to the type of the RITs cars). In this case the entire train can be formed from these cars and the overall number of passengers can be increased by 4-7 percent over the existing type sizes, with a considerable increase in the travelling comfort for the passengers.

But a radical increase in the handling capacity with a simultaneous increase in the comfort, in our opinion, can be achieved only introducing 2-level cars. The VNIIV has conducted a technical and economic evauluation of the expediency of constructing 2-level cars with sleeping compartments and with a body length of 24 meters (that is, retaining the present length of the car) with a clearance of 1-Ta. It has been established that with the existing spacing of the compartment, the capacity of a passenger train formed from such cars will increase by 28 percent as compared to a train with an equal length made up of compartment and open cars of the existing types and sizes. At the same time there will be a rise in the overall level of travelling comfort for the passengers since all cars will have 4-seat compartments. Additional developments have shown that the 2-level car with a compartment layout with a body 24 meters long and a clearance of 1-Ta, which has been used as a base variant, is preferable. When utilizing the variant of the layout with increased spacing of the compartments and optimal indicators of comfort (at the level of existing compartment cars) the capacity of the train increases by 20 percent. For day cars with seating places the handling capacity of the train can increase by approximately 63-65 percent.

There is no doubt that the introduction of 2-level cars involve solving a whole number of serious problems such as restructuring production and operation, dividing the trains according to zones of operation into domestic and international, designing a number of domestic components, and so forth. But, in our opinion, these problems are not insoluble in light of the obvious technical and economic advantages of 2-level cars.

Increasing the Reliability and Accelerating the Introduction of New Technical Equipment

As was already noted, with increased intensivenss of the operation of rolling stock there are increased requirements on the durability of the cars. Therefore the VNIIV in conjunction with plants of the branch is constantly working on this problem, and with the introduction of certification of product quality and the organization of subdivisions for reliability within the VNIIV and a special service for reliability under the main administration for railcars of the Ministry of Railways, all work in this branch has been placed on a planned basis. They have developed the first lists of normative requirements on the reliability of cargo and passenger cars, which have been coordinated with the clients, and they are regularly conducting research on the reliability of the cars and their most important components.

The extensive material that has been accumulated by now has made it possible to prepare by 1982 considerably improved normative documents that regulate the requirements and methods of evaluating the reliability of passenger and cargo cars. Individual recommendations for calculating reliability in the stage of planning have been included for the first time in the new edition of the norms for planning and calculating the mechanical part of the cars. At the present time indicators of reliability, whose actual values are checked from operations data, are being included in all technical specifications for cars and components. Car construction plants annually plan technical and technological measures for improving the quality of cars that are produced on the basis of the results of investigations of the reliability and the requirements of the client during regular quality certifications.

Very important for increasing reliability is improvement of the normatives for the calculations and design of the cars, improvement of the technology for their manufacture, and the application of effective new materials in their designs. Active work is also being done in these areas at the present time.

A comprehensive approach to increasing the reliability of the cars provides for a constant reduction of the number of breakdowns of new cars during operation and an increase in the technical safe life of the main bearing elements of the design of the cars. This made it possible in 1979-1980 for the Ministry of Railways to increase the regulation service periods before capital repair of the cars by 25-30 percent. Thus for semi-cars the periods between capital repairs were increased from 7 to 10 years, and for closed cars--from 12 to 14 years. The VNIIV in conjunction with the plants has developed a plan of additional measures for increasing the safe life of cars under the 11th Five-Year Plan, whose implementation will make it possible to limit the number of capital repairs.

Additionally, as practice shows, the number of cases of uncoupling of cars during current repair continues to be fairly high. As data from analyses show, most of the cars come for current repair with damage that is caused by violations of the rules for shipping cargo, loading and unloading, and maneuvering, and the low level of maintenance of the cars. In our opinion, the railroad workers must fight against these shortcomings more resolutely. In turn, the

railcar builders should continue to search actively and realize reserves for further increasing the reliability of the cars in order to reduce the number that must be sent for unplanned repair.

One of the most responsible tasks facing the railcar construction industry is accleration of the time periods for creating new technical equipment. In order to successfully solve this complex problem, it is especially important, in our opinion, to have a selection of basic directions for technical progress in the area of railcar construction so as not to waste forces on secondary developments.

One of these directions, in our opinion, should be increasing the cargo capacity of the rolling stock as a result of reducing the weight of the cars or increasing the allowable loads from the axle to the rail.

For many years the GOST for the creation of rolling stock has stipulated that the calculated load from the axle to the rails is accepted to be 22 ton-force when designing cars, but the actual cargo capacity of the cars is established first at 20.5 ton-force and then 21 ton-force. Thus for a number of years in the rolling stock potential possibilities were created for increasing the cargo capacity of the cars on the basis of increasing the permissible load from the axle to 22 ton-force, which were realized in the middle of the 1970's. In 1980 the Gosstandart adopted a proposal of the Ministry of Railways and the Ministry of Heavy Machine Building to establish the cargo capacity of the main types of mainline cargo cars on the basis of an axle load of 23.25 ton-force, which made it possible to increase the cargo capacity of covered cars, semi-cars and platforms to 68, 69 and 70, respectively. In addition to this one must note that the management of the Ministry of Railways has now permitted cargo dispatchers to overload the universal cars to 72 tons, and bunker self-unloading cars by 5 tons as compared to the set cargo capacity, which in practice increased the axle load to 24 ton-force. Still, a number of components of cars that are being produced at the present time do not correspond to these increased loads, as a result of which they break down prematurely and the cars are sent for current repair.

Taking into account what has been said, it is quite understandable that the Ministry of Railways has issued orders for the creation of certain types of cars of the bunker type on the basis of a permissible load from the wheels to the rails of 25 ton-force. It would seem quite natural if similar orders (with a permissible load of 25 ton-force) were issued for recalculating the main types of mainline cargo cars, since it is inefficient to create two types of cargo cars with a load of 23.25 and 25 ton-force. The solution to this problem would contribute to an essential increase in the reliability of the cars, a reduction of expenditures on their maintenance during operation, and so forth. One should also keep in mind that even with the creation of cars with an increased axle load, the Ministry of Railways still has the right to establish the set cargo capacity, as before, when it was established as less than calculated, and is now the case, when it is permitted to overload the cars by more than the established cargo capacity.

Because of the special importance of the task of reducing the actual weight of the rolling stock, railcar builders, in addition to increasing the reliability and durability of the cars, have always devoted primary attention to questions

of reducing their weight, and reducing the expenditure of rolled metal on their manufacture. Extensive application of low-alloy steels instead of the usual carbon steels, bent profiles instead of stamped ones, a large list of special hot rolled profiles with reduced cross-sections, periodic rolled metal, precision smelted steel with minimum allowances for mechanical processing or completely without them have made it possible to regularly reduce the proportional expenditure of rolled metal. Railcar builders have managed to bring the coefficient of its utilization in the branch as a whole up to 0.86, and for individual mass types of cars--up to 0.9, which is considerably better than the average coefficient for machine building as a whole. With this coefficient of the utilization of rolled metal a further reduction in its expenditure will lead to a reduction in the calculated durability of the cars, and a reduction of their service life and reliability.

At the present time a new edition of the "Norms For Planning and Calculating Cars for Durability" is being prepared for approval. The changed conditions for operation have made it necessary to increase a number of requirements and increase the calculated load for individual elements of the design. In this connection, when creating cars on the basis of the new norms there will inevitably be a need for a certain increase in the expenditure of rolled metal. Still, in spite of the lack of reserves for reducing the weight of the cars, and, moreover, the critical need to strengthen individual elements of them, railcar builders are always being given the large assignment of economizing on rolled metal.

Taking into account what has been said, at the present time it would be extremely timely and expedient to raise before the planning agencies the question of the need to maintain or increase to a certain degree the norms for the expenditure of rolled metal for individual types of cars in order to increase their durability and reliability, justifying this by subsequent savings as a result of reducing the expenditure of metal on technical servicing and repair of cars during the period of their operation. A positive solution to this important and timely problem can be achieved only through the joint efforts of railcar builders and the main client--the Ministry of Railways.

The acceleration of scientific and technical progress in the area of railcar construction would be promoted to a considerable degree by the creation of the proper experimental base where it would be possible to comprehensively test rolling stock, and not only to measure all statistical and dynamic indicators of newly created cars, but also to establish their operational characteristics and to conduct a complex of stress tests with a determination of the service lives and the durability. At the present time the railcar construction industry does not have such an experimental base. The site for it was selected and at one time the technical and economic substantiation was developed and approved, but because of the lack of funds the construction of the experimental base is not being planned for the next few years. In our opinion, such a situation can not be recognized as normal. It would be expedient to review this issue once again and to find a possibility of allotting funds for the creation of the necessary experimental base.

Railcar builders understand well that the requirements for the quality of cars, their technical level and their economic effectiveness grow as the shipping process on the railroads becomes more intensive, and they see their main task in making sure that newly created rolling stock fully meets these increased requirements. Workers of the branch are filled with resolve to achieve in conjunction with railroad workers steady and reliable operation of the railcar fleet and further improvement of the transportation of cargo and passengers.

11772
CSO: 1829/304

CHIEF ENUMERATES PROBLEMS OF SOUTHEASTERN RAILROAD

Moscow GUDOK in Russian 17 Jul 83 p 2

[Article by A. Goliusov, chief of Southeastern Railroad: "An Order for Science--How Old Is the Brake Shoe? The Yardmaster Is Leaving the Switching Area. Instead of Cleaning Equipment, We Have a Stick and a Rag."]

[Text] Over the years of the last five-year plans, our railway has changed beyond recognition. Today the Southeastern Railroad is one of the leading lines in the system in terms of its technical equipment. The locomotive fleet consists primarily of the powerful VL80 and ChS4t electric locomotives and 2TE116 diesel locomotives. Electric traction accounts for about 70 percent of all our transport. The track is laid on a road metal foundation. A significant part of the line has seamless track with heat-tempered rails laid on concrete ties.

Over the last 20 years the freight turnover on the line has doubled, and the entire increase was achieved without adding at all to the staff.

However, the demands made on railway transport today are such that what we have already accomplished does not provide for the necessary increase in freight and passenger transport, along with a decrease in expenditures. We associate qualitative changes in transport operations with accelerated technical progress. Here we cannot get by without scientists, from whom production rightfully demands more active participation, and more rapid resolution of the pressing problems that come up in everyday operations.

Without trying to make any generalizations, I would like to mention a few of the problems that production workers encounter all the time. In our opinion, these are problems that may be difficult, but could still be solved if the collectives of scientific institutions would work more persistently on them.

It is well known that inefficient, manual labor still accounts for a large proportion of work in the production process. In our railroad's locomotive and railroad car sections it accounts for 72 percent of the work; in track work it accounts for 56 percent; and in traffic operations it accounts for 86 percent. This hinders the rate of growth in labor productivity and it reduces transport efficiency. At the June Plenum of the CPSU Central Committee, Yu. V. Andropov emphasized: "The key goal in the economic sphere is a major increase in labor

productivity. We should strive to achieve the highest labor productivity level in the world."

We have quite a few resources for increasing labor productivity. Let' look at just one problem, such as keeping rolling stock on station tracks from moving on its own. All this work is done manually. We have 340 people in our railroad line engaged in this work. And how many people are working in this area in the entire railroad network?

How has this happened? The brake shoe was invented at the very dawn of the development of railroad transport, and has undergone practically no changes since then. It weighs about 7 kg. So the signalmen (who are actually women, as a rule) have to haul hundreds of kilograms during every shift. Making their work easier is an important social goal. What's more, as more railroad cars are converted to roller bearings, the need for reliable braking devices increases sharply.

The problem of securing rolling stock must be solved on a fundamentally new basis, for example, on an electromagnetic or other contemporary principle. In the meantime, one would like to see modernized brake shoes with a greater braking effect and a guarantee against slippage.

The work of yardmasters on the switching tracks, who appraise railroad cars as they pass by in trains, is also not automated. Since the time when the first switching track areas were built the nature of this work has not changed; it remains dangerous with little to recommend it. Therefore there is a high turnover rate among these workers.

There are many problems in the current maintenance of the tracks. What can be done, for example, about the litter that collects on the ballast? On sections of the line where coal mines and quarries are located, the tracks must be cleared of obstructions practically every year. This requires a great deal of manpower and materials. Equipment is diverted and the interruptions in rail traffic reduce what is already an inadequate carrying capacity. Litter on the ballast can damage track and interfere with the operation of automatic switching equipment.

In addition to this, the national economy suffers immense losses of material valuables that have already been procured. The trains' movement causes spillage of thousands of tons of coal, ore, fertilizers, oil, and petroleum products. This is no longer a problem belonging exclusively to the railroads. Its resolution calls for combined efforts; other sectors of the national economy need to join in.

There is also the problem of keeping the track in place, especially with seamless track where it is necessary to use about 16,000 bolts per kilometer. The automatic screwdrivers used in the Matveyenko system have proved effective, but we are not receiving these machines from any centralized source. We are making them ourselves in a primitive fashion under primitive conditions. The speed of these machines under transport conditions is no more than 25 km/h; this requires an increase in the length of the "window", which is not always possible.

In our view, little attention is being given to mechanization of labor in the passenger sector of the industry. There are no automatic machines for local and long-distance ticket sales. There used to be the "Volkhov" machines; and with all their imperfections, they still sped up the process of selling tickets. But the "Volkhov" machines have been taken out of production and we are not getting anything to replace them.

At the Moscow ticket center the "Ekspress-1" computer system is being used and an improved "Ekspress-2" system is being developed. It is not set up, however, for making reservations and ticket sales for trains operating within other railroad lines. This system should be taken further and for every railroad line there should be "mini-Ekspress" systems that would provide seat assignments, ticket printing, control over the receipts, and automated accounting. This would save time for passengers and ticket clerks.

The problem of mechanized baggage handling has not been resolved either. This problem is especially serious at small stations where the stationmasters have almost no one to perform this work.

Contemporary architectural trends call for train stations with large glass panels, and lobbies and waiting rooms with high ceilings. But there is no equipment for cleaning and maintaining these structures, and it is necessary to use a stick and a rag for this work. In fact, the platforms and station grounds are cleaned by hand. The sidewalk sweeping machines that have been built to do this work are ineffective.

Indicators for evaluating railroad operation must be improved. Let's look at a universal indicator, such as railcar turn-around time. It does not always give an objective description of the actual situation. We do not need to look far for examples. On 1 July the Southeastern Railroad had a surplus in the working fleet of almost 7000 railcars set aside at the North Caucasus and Volga Railroads, but they were not being used. This fleet is considered part of our railroad's resources, but we cannot use the cars for our own needs; and we must still pay for the fixed capital. In addition to this, with the surplus in its fleet, the railroad is not fulfilling the quota for railcar turn-around time and is seen as lagging behind other railroads. There needs to be an accounting system that will reflect objectively the work of the collective in utilizing the railcar fleet.

This is far from a complete list of the issues and problems that transportation science collectives need to get involved in immediately. Science must lead production and solve the fundamental problems of accelerating technical progress. The decisions of the June Plenum of the CPSU Central Committee are aimed at just this.

9967
CSO: 1829/369

SPARE PARTS STILL IN SHORT SUPPLY; OFFICIALS SCORED

Moscow GUDOK in Russian 19 Jul 83 p 2

[Text] A decree issued by the USSR Committee of People's Control notes that main administration chiefs of the Ministry of Railways often complain about the shortage of spare parts for keeping their traction equipment in working condition, but the opportunities that the ministry has for increasing the output of these products are poorly utilized.

Last year and during the first quarter of this year 10 plants alone among those checked fell short in spare parts production by 8.8 million rubles. These enterprises were supposed to produce 990 different units and parts. The production quotas for 404 of these items were not fulfilled, and 123 different spare parts were not produced at all.

Not one railway received the planned quantity of spare parts, and cooperative deliveries also went unfulfilled. For example, the Orenburg Diesel Locomotive Repair Plant fell short in its shipments to railways by 421,000 rubles and to cooperative repair plants, by 1.8 million rubles.

There were the most flagrant violations of supply discipline. In the first quarter of this year the Ishim Machinery Plant sent diesel engine cooling system parts to the East Siberian Railroad totalling twice as much as the allocated funds; and to the Transcaucasian Railroad, parts that totalled 4 times as much as the allocated funds. Meanwhile, the Baltic and Kuybyshev Railroads received only 70-80 percent of what was called for in the plan.

A particularly bad situation has arisen at the Ulan-Ude and Poltava plants.

The Ulan-Ude Locomotive and Railcar Repair Plant fell short in its delivery of diesel locomotive spare parts by 1.5 million rubles. This is almost one-fifth of the total shortfall of all the plants under the main administration. Last year it paid 716,000 rubles in fines, which is double what it paid in 1981. Manpower resources are used poorly here and discipline is bad. Up to 40 percent of those working the second shift left work 1.5-2 hours early. In the mechanized shops, of the 16 lathes set up in 1981 with numerical programmed control, 6 were operating at half-capacity and 10 were not operating at all. On the day the plant was inspected, 79 different pieces of equipment were standing idle.

There has been no campaign to conserve metal. The forge shop delivered forgings weighing over 200 kg for the manufacture of gears weighing 62 kg. For this reason there have been overexpenditures this year of more than 1700 tons of alloyed steel, which is 38 percent above the yearly norm.

The land surrounding the enterprise has turned into a dump for diesel locomotive parts and units. Spread out in disarray out in the open air were 41 partially assembled diesel engines, hundreds of wheel pairs, and other equipment. New spare parts and materials valued at over 5000 rubles have become useless due to careless storage.

Instead of improving organization of production, the enterprise's managers have started making inventories of restored and old parts. As a result, unjustified bonuses totalling 25,500 rubles have been paid.

The Poltava Diesel Repair Plant fulfilled the 1982 plan for spare parts production by 86 percent. It has managed to meet the quota for volume of output for the first quarter of this year, but it has fulfilled the plan for production of the various articles on its products list by only 50 percent. In terms of its contract obligations, it fell short in delivery of spare parts to railroads by 540,000 rubles; and to repair plants, by 751,000 rubles. The main reason for this is the production of a large quantity of defective articles. A result of this was a loss of over 500,000 rubles last year and in the January-March period of this year. At the same time, at a loss to basic production, non-plan products for non-transportation organizations valued at more than 1 million rubles were manufactured; about a thousand tons of ferrous and over 50 tons of nonferrous metals were used in this process. The Repairs to Rolling Stock and the Production of Spare Parts Main Administration has developed measures to fulfill the instructions issued by directive organs to improve the plants' operation. However, at the time the inspections were made, of the 35 measures whose deadlines had expired, one 6 had been carried out. Without fulfilling output of assemblies and parts of which there are acute shortages, the plants fulfilled at their own expense numerous orders for non-transportation enterprises and produced extra spare parts, which sometimes were written off at the railroads as scrap metal.

The Collegium of the Ministry of Railways assigned comrade Golovatyy the task of improving the operation of those plants that are lagging behind, with the Orenburg and Tashkent plants taking first priority. However, they are still not managing to fulfill the plan and are using only 35-60 percent of their production capacities.

Although the directors of the administration, including comrade Golovatyy, have made several site visits, the flagrant violations of plan and state discipline have not be eliminated in a timely manner and the plants have not received the proper assistance.

The failure to fulfill the plan for delivery of spare parts has led to a situation in which hundreds of diesel locomotives a day are prevented from operating on the country's railroads. In violation of regulations, the repair enterprises have been forced to leave old, practically useless parts on locomotives, which has led to premature removal of the locomotives from the

working fleet. This was the main reason for the situation last year in which practically every third locomotive repaired by the plants had to be recalled, and many had to be returned for additional repairs.

The USSR Committee of People's Control has reprimanded comrade Golovatyy, chief of the Repairs to Rolling Stock and the Production of Spare Parts Main Administration, as well as comrade Sarzhan, director of the Ulan-Ude Locomotive and Railcar Repair Plant under the Ministry of Railways. In partial compensation for material losses suffered by the state, monetary fines have been charged against comrade Sarzhan and comrade Volkov, director of the Poltava Diesel Engine Repair Plant.

A statement made by comrade Shuleshko, first deputy minister of the Ministry of Railways, has been taken into consideration. He recommends that the ministry eliminate all the shortcomings that have been uncovered and that the responsible parties be called to account.

9967
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LAGGING PRODUCTION AT ABAKAN RAILCAR/CONTAINER WORKS

Moscow EKONOMICHESKAYA GAZETA in Russian No 33, Aug 83 p 19

[Article by V. Shloma, EKONOMICHESKAYA GAZETA correspondent: "Lessons in Development--On Utilizing Capacities at the "Abakanvagonmash" Railcar/Container Association"]

[Text] It seems that up until quite recently there was just a barren steppe here. For tens of kilometers there was not even a tiny tree or a little shrub. But today in the outlying areas of Abakan--the center of the autonomous oblast--there is a modern industrial landscape filled with the numerous buildings of the "Abakanvagonmash" [Abakan Railcar/Container Works] Association.

Today the association's primary product is railroad flatcars for shipping international-class large cargo containers, as well as the containers themselves. Our country's economy is in great need of these products, as are the economies of all the CEMA members.

The planned capacity of the container works which is included in the association is 40,000 containers. This is the largest plant of its type in the world.

The enterprise put out its first products in 1978, and it has been building up production every year since then. But it has never gone beyond the goals set by the planning organs. The deadline for full development of its planned capacity is the end of this five-year plan.

One senses a certain nervous tension in the office of the association's general director. The phone rings and there are short, abrupt conversations.

"It wasn't a good day today," Viktor Nikolayevich announces gloomily. "Even though the output wasn't bad--we did put out 73 containers. This isn't enough. We only had 30 that could be entered in the State Registry. Out of 73! The cracks are really hurting us!"

The problem is cracks. They cannot be detected in metal parts by the naked eye, but they are there. The strict representative from the State Registry has inflexible requirements.

Container production is distinguished by a high level of mechanization. There are highly automated lines for cutting sheet metal, high-precision stamping, and fine casting. There are automatic machines, manipulators, and robots. The entire complicated production process has its effect on the quality of the metal.

A complicated discussion has been going on with metallurgists from the Cherepovets plant for several years, literally since the first days of the enterprise's existence. The Cherepovets metallurgists write in the accompanying technical documents, "The mechanical properties of heat-rolled steel are facultative." In simpler terms, these properties in no way correspond to the All-Union State Standard. This is why the automatic machinery reacts with the "facultative" metal in the way it does. The equipment causes the metal to start to leak or crack.

New production in Siberian machine building has made special demands on the country's Ministry of the Chemical Industry and Ministry of Timber, Pulp and Paper, and Wood Processing Industry. Here, too, the problem of coordinating contemporary production sectors has not been resolved because of the sluggishness of workers in related industries. The Ministry of the Chemical Industry, for example, has not developed production of light and air resistant and rubber condensers for container doors. The Abakan association was forced to develop its own production of these condensers. The USSR Ministry of Timber, Pulp and Paper, and Wood Processing Industry is not providing the proper lumber for the conveyor lines to produce special floors for the containers.

It was almost as if there was a planned solution to this problem. The boards can be replaced by a special plywood. The Bratsk Lumber Combine and the Perm Plywood Factory are making efforts to develop and manufacture this type of plywood. Their first samples are promising, but the problem has still not been solved.

A third of the association's collective is made up of young people who have come from Khakass rural areas.

Viktor Nikolayevich Prelovskiy, the general director, said, "Our task is to create in a short period of time a highly skilled collective of contemporary machine builders, for whom even a robot is nothing new."

Under the conditions of remote Siberia, this is not a simple task.

An additional requirement of the collective, taking in account the need to develop and put into operation new capacities, is over 100,000 square meters of living space.

If one analyzes the dynamics of the sector's financing of construction of the association's housing, social, cultural, and domestic services projects, one comes up with a broken line, which has never come close to planned and estimated levels and rates for financing construction of production capacities. The high turnover in manpower at the still young enterprise corresponds to this curve.

An uncoordinated approach to planning and construction causes problems in filling production demands for skilled personnel and results in large production losses.

In the fall of last year, at the initiative of the Krasnoyarsk Kray and Khakass Oblast party committees a coordinating council in Abakan worked on problems of developing the capacities of container production. A detailed set of measures was developed, the realization of which would help the collective reach planned capacities more quickly. As of yet, however, no decisions have been made with regard to these documents at the Ministry of Heavy and Transport Machine Building and at "Soyuzvagonmash" [Union Railcar and Container Machine Building] Administration.

What is the collective of Khakass machine builders doing to lessen the effect of such negative factors that are sometimes not dependent on the collective itself? The "Abakanvagonmash" Association is looking for and finding reserves. They do exist. Above we were discussing special flooring for containers and the poor quality of the lumber being supplied to the enterprise. Without waiting on workers in associated industries, the machine builders created their own warehouse right alongside the railroad tracks. They installed a gantry crane there and are now building a sorting area (none of this was in the original plan). The workers will be able to receive the lumber without delays and sort it immediately before putting it on the conveyor. In addition to this, the plant workers modernized the conveyor line for gluing together separate flooring sheets.

Now the Abakan workers are starting work on the reconstruction of the station for unrolling sheets of steel. This is the beginning of the line for preparing container parts. A system for mechanized delivery of castings has been implemented at the heat stamping section. All this can in some way compensate for the losses in productivity in container production.

9967
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RAILWAYS MINISTRY EMPLOYEES ORDERED TO WEAR PROPER UNIFORMS WHILE ON DUTY

Moscow GUDOK in Russian 22 Jul 83 p 2

[Article: "Proper Uniforms Must Be Worn"]

[Text] The Ministry of Railways and the editors of GUDOK are receiving justifiable criticism and complaints that many senior officials of the central ministerial organization as well as of the administrations of roads, divisions, subways, higher educational institutions and other organizations and enterprises within the rail transport system are not wearing proper uniforms while performing their official duties. This is creating a situation in which other railroad personnel, too, are ignoring established Ministry of Railroads uniform regulations.

The Minister of Railroads has directed that the chiefs of Ministry of Railrods administrations, superintendants of individual railroads, road divisions, subway systems and territorial industrial rail transport associations and institutional rectors take steps to insure that railroad personnel wear proper uniforms while performing their official duties. Railroad personnel on assignment to the Ministry of Railroads are also required to wear proper uniforms.

Any mixing of winter and summer uniforms or of civilian clothing and any item of the official uniform is categorically prohibited. Personnel should be inspected to insure compliance with established uniform regulations.

Senior officials should reinforce the requirements they impose upon subordinates with the force of their own personal example.

8963
CSO: 1829/325

RAIL WORKERS ARGUE OVER CULPABILITY IN TRANSIT LOSSES

Moscow GUDOK in Russian 15 Jul 83 p 2

[Article by senior acceptance and transfer officers Romanenkova, Antonova, Shevchenko, Korovina and 22 others: "Is the Shipper Responsible?"]

[Text] We acceptance and transfer officers here at the Tallin maritime port are very disturbed by the problems we're having with security for our import shipments. That's why we try to be as thorough and painstaking as possible in checking weights and the numbers of individual pieces comprising a particular shipment before it goes out. We do this most frequently as a body and in the presence of police representatives, nonagency security people and port personnel. With all that you'd think things would be perfectly in order. But, alas, they aren't; quite the contrary is the case! Cars come in with cargoes headed for their destinations with proper seals and the standard twists, but then a little while later we start getting telegrams reporting short weights or individual items missing from one shipment or another.

Our collective has been suffering enormous losses as a result. Car No. 2541187, which we dispatched last year on commission Moscow-freight terminal-Yaroslavl', for example, was said to be short some 2500 rubles worth of footwear. And it wasn't just "somebody else" that had to make up the loss in this case, it was none other than the people at the Tallin station themselves who had to foot the bill.

And then here's another example from our experience this year. In the presence of a station engineer, a representative of the port and an inspector, we dispatched car No. 2528301 Moscow-freight terminal-Ryazan' with almonds. And then what happens? Pretty soon we get back a telegram saying they're short 316 kilograms!

We get "alarming" reports like this particularly frequently from the Central Asian, Azerbaijan and Transcaucasian trunks. In the meantime, though, there is a way to increase our cargo security. What we think needs to be done is to ask inspectors and specialists who are independent of both the railroad and its clients to be present for both the dispatching and unloading of a shipment. It will then be possible to establish precisely how these losses really occur.

It would also be a very good thing if people's controllers at both dispatching and receiving stations were involved in these inspections.

8963
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CONSTRUCTION DETAILS OF MOSCOW METRO'S NEW SERPUKHOVSKIY LINE

Moscow TRANSPORTNOYE STROITEL'STVO in Russian No 7, Jul 83 pp 14-18

[Article by I. V. Usenko, Moscow Metro Construction Administration: "Moscow Metro's New Lines"]

[Text] Two new lines will be added to the Moscow metro in the 11th Five-Year Plan.

The introduction of a new pylon and column station on the Serpukhovskiy line is saving 1000 tons of metal, 4150 man-days in labor expenditures, and 200,000 rubles.

Utilization of the ShchNE-1 automated sluice makes it possible to reduce the cost of underground driving work by 300,000 rubles/km and to decrease the labor expenditures by 1200 man-days.

The use of prefabricated sections in the installation of tunnel walls provides a saving of 2000 man-days per 1 km of tunnel and also a saving of 37,000 rubles.

Use of pre-cast slabs reduces labor expenditures to 28 percent of what they would be otherwise.

Replacing traditional castings with anchor fastenings on the foundation walls provides a savings of 133 tons of metal per station and reduces the labor intensiveness of the operation by 800 man-days.

During the current five-year plan the Serpukhovskiy line will be put into operation in Moscow's subway system; it will extend 18 km from Borovitskiy station to Prazhskiy station. The Zamoskvoretskiy line will be extended 9.8 km from Kashirskiy station to Orekhovo and Brateyevo (figure 1).

This year the section of the Serpukhovskiy line from the Kol'tsevoy [Ring] line to Kirovogradskiy Street will be put into operation. This section starts at Dobryninskiy station, goes through Serpukhovskiy station, intersects the Paveletskiy railroad line at the Nizhnyye Kotly station, follows along Azovskiy Street to the Volkhonka Automobile Plant imeni I. L. Likhachev; it intersects with Nakhimoskiy Prospect and Balaklavskiy Prospect, and ends up at the center of Chertanov. The constructed length of the new section of the

Serpukhovskiy-Yuzhnyy line is 13.9 km, 2.1 km of which are laid on deep foundations and 11.8 km on shallow. The travelling time between the last station and the Kol'tsevoy line will be no longer than 16 minutes.

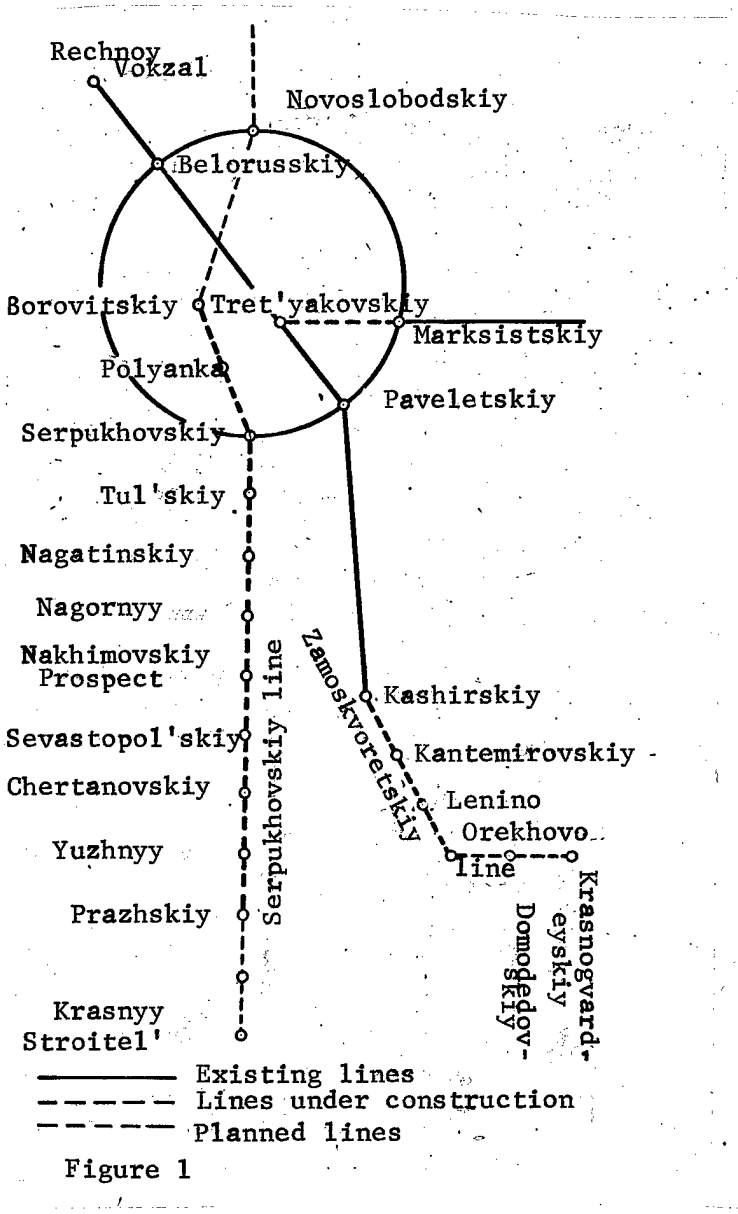


Figure 1

There are eight stations on the line. The location of the stations was determined by the building conditions, the flow of traffic, and the locations of large enterprises and various institutions. The plans call for the entrances and exits to be located in underpasses. All the stations have underground vestibules. Production and operation methods were developed on the basis of the geological and building conditions. Serpukhovskiy station, the connecting branch to the Kol'tsevoy line, and some of the tunnels going toward Tul'skiy station in hard, slightly wet rock are being laid at the deeper levels. Seven stations are being built using an open method in the foundation

areas. The transitional section between the deeper level and the level closer to the surface goes through hard, wet rock. As the line reaches the higher level, the tunnels go through sand, sandy loam, and loam that sometimes has a high level of ground water. Beyond Tul'skiy station the tunnels intersect filled-in ravines and they pass through sandy loam that contains pressurized ground water. In a number of places the tunnel's drainage gutter is lower than the level of the ground water. In order to avoid disruption of the city's normal activities in the areas where the new lines are being built, much of the tunnel construction was done using the covered method, even when the tunnels were being laid quite close to the surface. Artificial lowering of the water level was used on sections with a total length of about 3 km.

The tunnels, stations, and the structures adjacent to the tunnels are for the most part constructed of prefabricated and partially pre-cast concrete and reinforced concrete. Cast iron reinforcements were used only at Serpukhovskiy station and in several wet sections where the hydrostatic pressure was greater than 0.2 mega-Pascals.

As on all the lines of the Moscow metro, a great deal of attention has been given to the architectural and artistic design of the stations. Traditional materials were used for most of the finishing work: marbles of different patterns and colors were used for the facings on columns, pylons, and walls in the passageways; polished granite was used for the floors and lower parts of walls; and molded, cast, and anodized aluminum was used. The different stations are decorated with monuments and decorative art; thematic panels of Florentine-style mosaics and sculptural groupings are found on the passageway walls, at the end walls of the stations, and above entrances and exits.

The second stage calls for putting into operation a section of the Serpukhovskiy line from Serpukhovskiy station to Borovitskiy station, which gets its name from the Borovitskiy gates of the Kremlin; there will be an exit at the gates. The station is meant to be located in the area of the existing Lenin Library, Kalininskiy, and Arbatskiy stations. The entrance and exit for the new station will be through the vestibule to the Lenin Library station on Marx Prospect. The vestibule will undergo reconstruction and will be connected to the new station by escalators. Transfers between the two stations will also be made through the same vestibule.

Transfers to Arbatskiy station will be made by taking two escalators, located at the end of the new station and in the middle of the Arbatskiy station, which connect the central station area and corridors that pass under the train tunnels of Arbatskiy station (figure 2). Transfers from Borovitskiy station to Kalininskiy station will be made temporarily through Arbatskiy station.

From Borovitskiy station the line goes to Serpukhovskiy station. The route of this particular section was determined by the present and future structure of the central part of the city, and by the need to locate the Borovitskiy station in such a way as to provide convenient transfers to the Arbatskiy-Pokrovskiy line and the Kirovskiy-Frunzenskiy line. The plan is to build the Polyanka station in this section of the line.

The second metro line that is to be put into operation during the 11th Five-Year Plan is a section of the Zamoskvoretskiy line from the existing Kashirskiy station to Orekovo-Borisovo and Brateyevo, with a constructed length of 9.6 km.

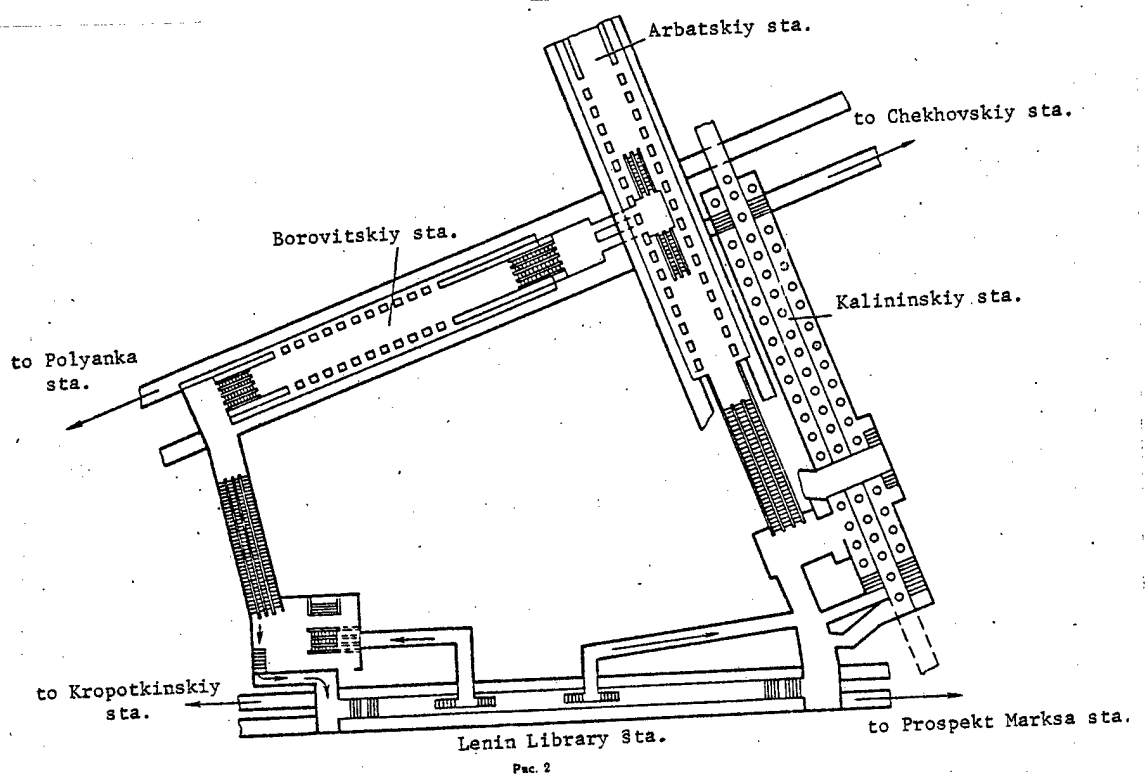


Рис. 2

Figure 2

The route of the section from Kashirskiy station passes through Lenino, goes on to a stop on the Tsarisyno-Kurskiy railway line, it reaches the old Kashirskiy highway, and follows it until it intersects with Musa Dzhalil Street.

After construction of this line is completed, the following traffic organization is planned. Trains from Rechnoy Vokzal station will travel to Krasnogvardeyskiy station and back. Shuttle service is planned for the Kashirskiy-Varshavskiy-Kahovskiy route, with transfers at Kashirskiy station to the main Gor'kovskiy-Zamoskvoretskiy line. The trip from Krasnogvardeyskiy station to Kashirskiy station will take 12 minutes, and to Ploshchad' Sverdlova station, it will take 26 minutes. The section will be put into operation in

two stages: the Kashirskiy-Orekhovo section will open in 1984 and the Orekhovo-Krasnogvardeyskiy section will open in 1985.

All five stations in the new section are located on city thoroughfares; each will have two underground vestibules with underpasses under the streets. Both underground and above-ground vestibules are planned for the Orekhovo station. The underground vestibule will be standard; the above ground one will be round and made of reinforced concrete, glass, and aluminum. The design of the central stairway in this station is quite original. It consists of a series of cupolas made of prefabricated reinforced concrete, put together by means of removable metal casing.

It will be possible to transfer from the Lenino station to the Tsaritsyno railroad line; the railroad station will be connected to the main vestibule of the metro station by 3 escalators.

Lowering of the ground water will be necessary during the construction of many of the tunnels and stations because many sections of the line are located in unstable ground.

All the stations are being constructed using open foundation methods. Kantemirovskiy and Krasnogvardeyskiy stations, which are single-vaulted, are being built with prefabricated concrete using an industrial method with mobile, self-propelled metal casing.

At present the Moscow Metro Construction Administration is building 18 stations simultaneously and it is working on the construction of almost 60 km of single-track tunnels. This is the first time that the collective has been involved in such a large volume of work.

Extremely diverse engineering and geological conditions; the presence of ground water, sometime even pressurized water, and quicksand, which was not always detected in the surveying process; complicated city building conditions with a far-flung underground network; the presence of small rivers, channels, and large drainage canals along the routes; the need to build tunnels at fairly shallow depths under railroad tracks and motor vehicle routes with a great deal of traffic and under groups of 16 to 20-story buildings in heavily built-up regions, have all made metro construction one of the most complex and labor-intensive sectors in construction, which requires the proper level of technology and highly skilled specialists. The complexity of the construction conditions forces planners and builders to search for new engineering solutions for the problems that arise. Many of these solutions are original in terms of design and implementation methods, and patents have been granted for some of them. The construction of new stations and transfer points in direct proximity to existing stations and lines, under conditions that limit and sometimes prohibit the use of explosives, also requires the application each time of various operating and production methods.

One of the progressive planning developments is the creation of a new economical design for deep pylon-column stations. This design was used in the construction of Serpukhovskiy station. In a cross-section, the station has a closed design consisting of rings of branching tunnels 8.5 m in diameter and a

central tunnel 9.5 m in diameter. The passages are supported from above by ordinary wedged bulkheads 5.25 m long, and from below by standard cylindrical supports set along the axis of the tunnel at half the width of the cylinder (for a more detailed description of the pylon-column design, see TRANSPORTNOYE STROITEL'STVO, No 3, 1981, p 9).

The new design has a number of advantages which have a signifcant economic impact. Compared to an ordinary station, the pylon design provides a savings of approximately 1000 tons of metal, the labor input is cut by 4150 man-days (due primarily to a reduction in manual labor), and the cost of the station is reduced by about 200,000 rubles. The cross-sectional area increases from 100 to 135 square meters.

Closed method construction of tunnels has been done with ordinary drift sluices as well as mechanized units. The KM-42 mechanized unit was used for the first time in the construction of the right span tunnel between the Nakhimoskiy Prospect and Sevastopolskiy stations. The unit consists of a ShchNE-1 automated sluice with two excavating-type operating assemblies; a self-propelled conveyor for cleaning up rock from the face and loading it into carts; a TY-3gp block-layer; a TN-16 pressure carriage; and a PP-8 platform with a boom.

The KM-42 unit has been used to build 810 meters of span tunnels; on different days the speed of excavation reached 5.3 meters per day. The operation of the sluice showed that its application makes it possible to mechanize almost completely the working and clearing of the earth (sand and moraine clay) and it also eliminates difficult manual labor. Maintenance of the ShchNE-1 requires fewer workers, which means a significant reduction in labor input. The drift brigade consists of 7 people, including the sluice operators; while 10 people are required to maintain and operate a non-automated sluice of the ShchNe-1 type.

In the drifting process several problems were discovered in the design and technical performance of the sluice itself, as well as in several different assemblies of the unit. After the final adjustments are made, the use of the ShchNE-1 sluice under appropriate geological conditions will provide a sharp increase in labor productivity, it will offer greater safety, and it will have a significant economic impact. According to preliminary estimates, there will be a savings of 300,000 rubles per km of tunnel and a reduction in labor expenditures of 1200 man-days.

A mechanized unit with the TShchB-7 sluice was put into operation on the Serpukhovskiy line for clearing the section between Serpukhovskiy station and Nakhimovskiy Prospect station. It was used to build 800 m of tunnel reinforced with prefabricated pressed concrete. The economic effect from the use of this unit is quite high, although the projected excavation speeds were not reached. The cost of building the tunnels was reduced by almost 20 percent; labor expenditures per 1 m of tunnel were cut by 6.8 man-days; and 400 tons of metal were saved per 1 km. The strength of the reinforcement using the planned type of concrete reached 40 mega-Pascals over the course of 3 months.

The 4PP-2 excavation combine with a boom driving unit was used successfully in the construction of the Serpukhovskiy station. The combine is convenient to use because as it breaks up the rock it also clears it off the face and loads it into carts. Experience in using the combine for excavation of approach sections and span tunnels in no-blasting zones has demonstrated its effectiveness in rock that is characteristic of that found at deeper levels (limestone, carbonaceous clays), and for short-distance sections.

The creation and introduction of mechanized units is aimed at the goal of decreasing significantly the use of manual labor. This is one of the most important tasks, since its resolution will have a major effect on increasing labor productivity; in metro and tunnel construction the proportion of total labor done manually is one of the highest in transportation construction and reaches 42 percent.

The method of building tunnels under railroad tracks and motor highways has received broad recognition. The collective of Moscow Metro Construction Administration's Construction and Installation Adminstration No 1 has used this method to build 2 tunnels each 45.67 m long with a 40 degree incline under railroad tracks of the Okrug Railroad in water-saturated medium-granular sand. The excavation was done with a jack device made up of 30 jacks with a total force of 30 mega-newtons.

The section between Tul'skiy station and Nagatinskiy station turned out to be very complex. The Construction and Installation Administration No 1 put through 2 tunnels here, each 74.35 m long. Because of the greater length of the tunnels, a pilot tunnel 2 m in diameter was put through to ensure the accuracy of the equipment. Guide rails were laid in concrete down the small tunnel's drainage channel so as to ensure that the tunnel would be excavated accurately. For the first time the excavation was performed using an intermediate jack device which was installed and turned on after the 30th reinforcement ring was laid.

Application of this method made it possible to put through the tunnel practically without any settling of the surface. This is unavoidable when using the sluice method. It was also possible to avoid shifting of railroad routes, closing highways, and re-routing traffic to other roads. The construction time was also reduced considerably; and labor input was cut by 20 man-days per meter of tunnel.

In places where engineering, geological, and building conditions allowed, the tunnels were built using the open method and completely closed sections 1.5 m in length. Over 3 km of the tunnels on the Serpukhovskiy and Zamoskvoretskiy lines were built with this method. This type of reinforcement treatment had been used previously on an experimental basis and on a small scale on the Rizhskiy line in the direction of Medvedkovo. Installing tunnel reinforcements in prefabricated sections makes it possible to increase significantly the amount of mechanized operations; it reduces labor expenditures by 2000 man-days per km of tunnel and provides a savings of 37,000 rubles. Molded slabs, such as hollow asbestos and cement blocks manufactured by a press-molding proces, were used extensively in the construction of inside walls and partitions for service facilities in the stations and entrances. They are sufficiently

strong, and are convenient to work with, and easy to finish. Use of molded slabs will make it possible to improve substantially the quality and outward appearance of the partitions; it will eliminate wet processes; and labor expenditures will be cut to 28 percent of the normal level.

Anchor fastenings for the foundation walls were used instead of castings in the construction of Yuzhnaya station and the sidings beyond the station. The design of the anchors, developed according to recommendations by the Central Transport Construction Scientific Research Institute, has demonstrated its value. The use of these anchors provides a savings of metal (castings) of 133 tons per station; and labor expenditures are reduced by 800 man-days. At the same time, the elimination of the casting work improves working conditions in the foundation area and makes the work site safer.

There were considerable difficulties in putting through the tunnel for the section of the Zamoskvoretskiy line between Lenino and Orehkhovo stations. In order to guarantee the safety of the work being done by the builders and planners, it was decided to put through the tunnels using the closed method and freezing the subsoil and lowering the water levels at the same time.

After the subsoil was frozen, an ice-subsoil mass was formed: the walls of both sides of the tunnel reaching the water-proofing, and an ice and subsoil vault over the future tunnels. Ground water that was not frozen was removed by the water-lowering process. On one of the sections where the water-proofing layer was laid very deep, the entire mass froze along the route and the excavation was done through frozen subsoil.

During the 11th Five-Year Plan, in addition to the Serpukhovskiy and Zamoskvoretskiy lines, the Kalininskiy line will be extended toward the center by 1.6 km to intersect with the Kaluzhskiy-Rizhskiy and Gor'kovskiy-Zamoskvoretskiy lines. The station there will be called Tret'yakovskiy and will be located next to the Tret'yakov Gallery. This part of the city is built up heavily, with many of the buildings built in the 18th and early 19th centuries. Therefore, the entire section will be built on a deep foundation. Tret'yakovskiy station is to be parallel to Novokuznetskiy station on the Kaluzhskiy-Rizhskiy line and the stations are to be connected; Tret'yakovskiy station is also to be connected with Novokuznetskiy station on the Gor'kovskiy-Zamoskvoretskiy line by transfer corridors and escalators (figure 3).

Traffic of trains at Tret'yakovskiy station and Novokuznetskiy station on the Kaluzhskiy-Rizhskiy line will be organized in the same way as at Ploshchad' Nogina station. Trains from different directions will arrive at each station in the same direction on each side of the platform. Passengers will need only go from one side of the platform to the other to transfer. Passengers need to go to the parallel station to get trains going in the opposite direction; there is an overpass in the center of the station for this purpose. The exit from Tret'yakovskiy station is onto Bol'shaya Ordynka Street through the existing underground vestibule of Novokuznetskiy station on the Kaluzhskiy-Rizhskiy line. The vestibule will undergo the necessary reconstruction to accomodate this.

The opening of the new section, planned for 1985, will provide significant improvements in connecting the eastern parts of the city with the center; it will ease the burden on the transfer junction at the intersection of the Kol'tsevoy line and Zhdanovskiy-Krasnopresnenskiy line, reducing the passenger turnover there by 20-25 percent.

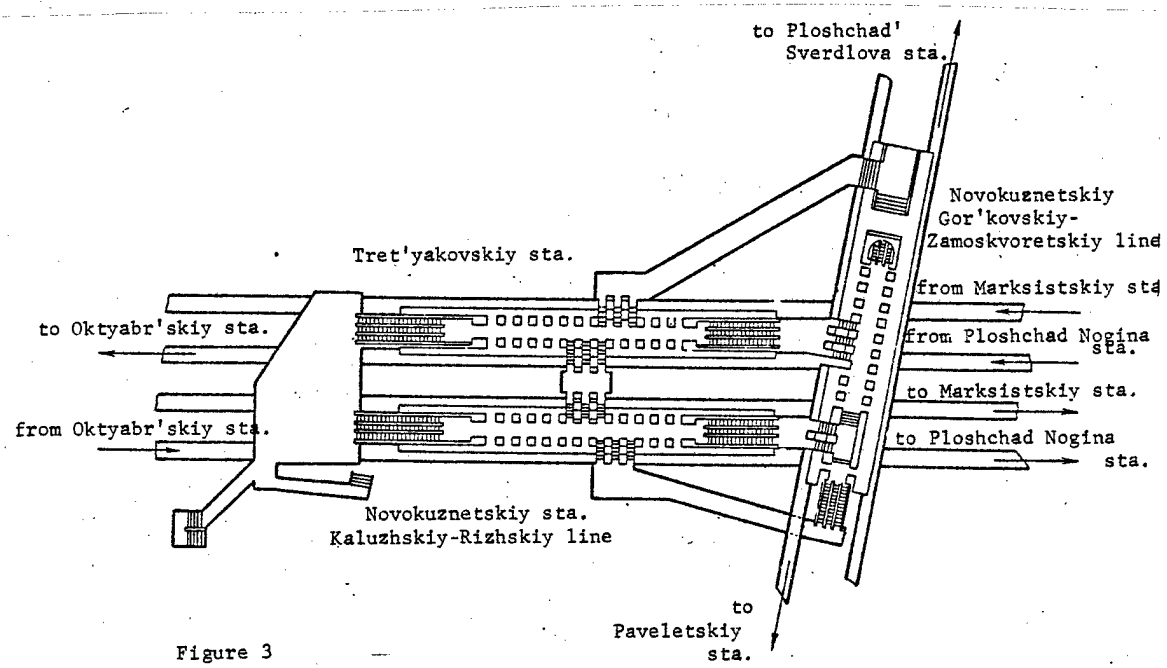


Figure 3

There are long-range plans to build a Timiryazevskiy line from Borovitskiy station to Otradnoye, 16 km long. At Borovitskiy station the Timiryazevskiy line will connect with the Serpukhovskiy line and form the Timiryazevskiy-Serpukhovskiy diameter. The line will go from Chekhovskiy station, which forms a convenient transfer junction between the Gor'kovskiy-Zamoskvoretskiy, Zhdanovskiy-Krasnopresnenskiy, and Timiryazevskiy-Serpukhovskiy lines with Pushkinskiy and Gor'kovskiy stations. The route will continue under Trubnaya Ploshchad', intersect with the Kol'tsevoy line at Novoslobodskiy station, where a transfer point will be built; it will go to Savelovskiy train station, and will continue to Otradnoye through Kirovskiy and Timiryazevskiy rayons.

9967
CSO: 1829/371

NEW BRIDGEBUILDING TECHNIQUES SPEED BAM CONSTRUCTION

Moscow IZVESTIYA in Russian 3 Aug 83 p 1

/Article by A. Kleva: "Bridges for the BAM"/

> /Text/ On the BAM /Baykal-Amur Mainline/ new methods have been worked out for the high-speed construction of bridges. Today the pace of building them has outstripped the laying of the railroad track.

At the time when the BAM began to be laid, the following became obvious: by using the traditional methods of construction, the bridgebuilders would disrupt the planned deadlines for opening the line up to through traffic. At the same time, they were confronted with an unprecedented task: to erect on permafrost soils 2,300 bridges with a total length of more than 80 kilometers. The foundation of each bridge must be able to withstand the onslaught of mountain rivers when they melt in spring, obstructions, and the forces of heaving due to frosts, as well as possessing a 9-point earthquake-resistance....

"In 1974 we created a group which was entrusted with the task of working out methods for building bridges on column-type supports," stated the chief of Bridgebuilding Trust No 10, L. Blinkov. "Detachment No 54 began from point zero: it recruited drilling specialists and assembled machines capable of drilling holes 1--3 meters in diameter in the permafrost and the boulder-gravel conglomerate. The scientists of the Scientific-Research Institute of Drilling Equipment of the USSR Ministry of the Petroleum Industry helped in the creation of special machine-tool spans."

Thus was implemented the idea of the scientists of the Central Scientific-Research Institute of Construction, Lengiprotransmost, and the BAM workers, who had proposed that bridges be placed on clusters of concrete, column-type supports and shells, which had been sunk into the holes. The highly mechanized process completely eliminated the digging of foundation pits and reduced the material consumption of the structural components.

The first such bridges began to appear on the Little BAM--it was they which allowed the new branch to be put into operation a year ahead of the deadline and to begin delivering Yakutsk coal to the country over it.

The new universal technology possessed still another merit--it allowed us to reliably forecast the time periods required for carrying out operations in any categories of complexity of soils and approaches to the projects.

All this proved to be very pertinent when the principal forces of the transport builders came to the concluding, Trans-Baykal section of the mainline. By this time the bridgebuilders had fully mastered the new technology, set up plant manufacture of precast, reinforced-concrete structural components, specialized sub-divisions, and introduced the brigade contract.

...A helicopter flies to the "head" of the right-of-way. There below the yellow ribbon of the embankment has broken off. Lying ahead are the last kilometers of the BAM cut-through, but bridges are already firmly in place along it.

Later, on the ground, the following figure was cited to me: the BAM bridges on column-type supports represent 79.9 million rubles of economic effect. The work of the BAM builders has been put up for the competition for the 1983 USSR State Prize.

2384
CSO: 1829/360

TROUBLING STATE OF LOCOMOTIVE FLEET CAUSES CONCERN

Moscow GUDOK in Russian 1 Sep 83 p 1

/Article: "Improve the Technical State of Locomotives"/

/Text/ The troubling situation which has taken shape on the network in the locomotive fleet was the subject of discussion at a selector conference on the results of the last seven months. On the whole, transport has accomplished more than as of July 1982, but the tasks which were assigned to the locomotive workers turned out to be unfulfilled.

The locomotive fleet was to blame for the fact that in July the number of delays increased by 10 percent. The Lvov section was responsible for almost one-fourth of all the delays on the Alma-Ata and Western Kazakhstan Railroads. The Volga and Kuybyshev Railroads also contributed their own delays (4,500 hours each), as did also the Gorkiy Railroad (3,000 hours). With respect to damage and the number of defective locomotives, the indicators are now worse than they have been in previous years.

The most unfavorable with regard to these indicators is the Central Asian Railroad. There are twice as many out-of-order locomotives as there should be at the depots of Murom, Kem', Povorino, Chu, and Arys. At Sary-Shagan more than 30 percent of the locomotives are standing idle because of breakdowns.

Also providing cause for concern is the state of technological and production discipline in the localities. It is frequently the case that, merely because of a lack of controls, locomotives do not undergo technical servicing and repairs on time. In practically all the depots mentioned at the selector conference from 20 to 50 percent of the diesel locomotives are operated with over-runs between TO-3 /Technical Service-3/.

And sounding strangely against the background of all these facts and figures are the triumphant reports of the commanders of such depots as Chu, where more than 20 out-of-order sections are standing idle near the yard. Or the Makat Depot, at which in just the period of a few days one of their own and three attached diesel locomotives burned.

There are still a sufficient number of examples of such an irresponsible attitude toward the business at hand. All things considered, far from all sub-division

directors of the locomotive fleet have re-structured their own operations.

It is high time to make preparations for the winter. Locomotive workers should apply the maximum efforts and reduce the number of defects, uncouplings, and unplanned repairs, as well as achieving a reduction in the number of out-of-order locomotives. We must intensify the controls over the fulfillment of TO-1 by the locomotive crews. We should introduce on a broader basis the initiative of locomotive-engineer of the Moscow-Classification-Ryazan Depot, V. Sokolov, who has proposed that the crews accept the responsibility for the socialist preservation of traction-type rolling stock.

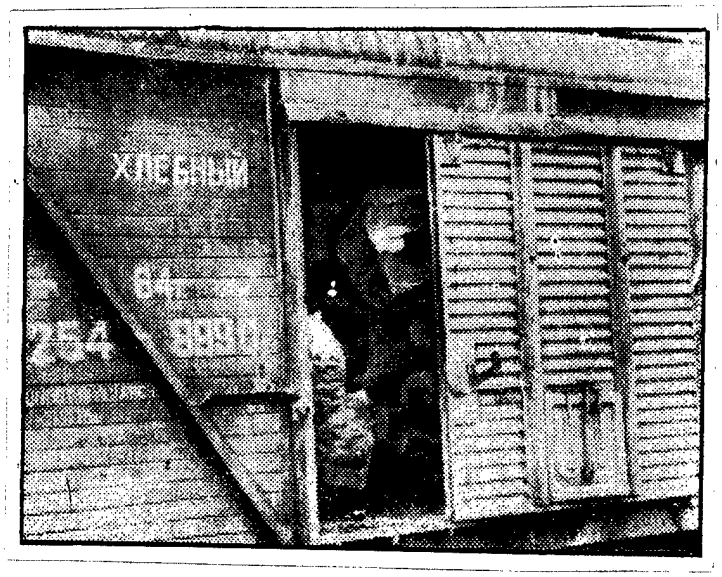
2384
CSO: 1829/360

SLOPPY LOADING OF GRAIN CARS SCORED

Moscow GUDOK in Russian 18 Aug 83 p 2

/Article by A. Martagov, deputy chief of the Traffic Department, Groznyy Division, North Caucasus Railroad: "Grain Cars Loaded with... Firewood"/

/Text/ Every railroader knows the following common truth: while loading, it is necessary to think about unloading. Otherwise, one may find oneself in a very difficult position. As, for example, happened in the case of the workers at the modest-sized line station of Konservnaya on the North Caucasus Railroad. On 26 July four grain box cars arrived here from the Garevaya Krasnoyarskaya Station for unloading on the general-use track. From the photo one may see how logs had been loaded into the cars. How much effort was required to extract this freight with the aid of ropes and a K-700 tractor! Each car stood idle for four days while being unloaded! But, you know, every grain car is now particularly valuable. Did the dispatcher and the workers at the Krasnoyarskaya Station of Garevaya think of this? Hardly.



2384
CSO: 1829/360

NEW AUTOMATIC CONTROL DEVICE FOR DIESEL LOCOMOTIVES

Moscow IZVESTIYA in Russian 17 Jun 83 p 5

[Article entitled "The 'Economizing' Effort"]

[Text] Automated devices designed by specialists and transport workers in Kharkhov are to make the runs of heavy freight trains as cost efficient as possible, thus saving the economy millions of tons of diesel fuel. The first group of main-line diesels equipped with these devices is already working out of the Kirov Station.

"In his speech at the Plenum of the CPSU Central Committee, Yu. V. Andropov called for great efforts on the issues leading to the industrial development of our country. Among those he stressed the improved use of energy resources and manpower. The automated device for diesels that we have designed answers those needs", claims A. Simson, professor at the Kharkhov Institute for Railroad Engineers. This device permits momentary uncoupling and then recoupling of dual locomotives with a total horsepower of 6,000. When the units are at a stop and both diesels are idling, much fuel is consumed. Shutting off the diesels is impossible, as the units must be ready to go. When necessary the new automated device turns off one of the diesels, thus reducing fuel consumption by one-half.

This dependable and simple device can be installed at any railroad junction. Specialists believe that its installation will reduce the consumption of diesel fuel along our nation's railroads by about five percent.

9964
CSO:1829/334

MICROCOMPUTER FOR ELECTRIC LOCOMOTIVES BEING TESTED

Moscow GUDOK in Russian 19 Jun 83 p 4

[Article, under the rubric "New Machinery and Technology", by A. Vol'vich, chief of the department of mathematical operation and computer technology at VElNII and candidate of technical sciences: "Microcomputer in the Cab of Electric Locomotives"]

[Text] Automatic control systems are being used in greater numbers on our country's railroad locomotives. Use of microcomputers is seen as one of the more promising steps, and this in turn will result in positive economic and technical indicators. The use of a large-memory computer can for example result in a saving of up to 60 percent in fuel used for cooling the equipment and of up to 10 percent for locomotive traction power. There is also standardization of operating systems for different locomotive types, and the installation of these systems is simplified. In addition, the amount of information transmitted from the locomotive's signaling system is increased; that is, there is more accurate automatic operation of the engine depending on its operational situation on the particular road segment.

Unfortunately the microcomputers produced in our country for general industrial uses are not specifically meant for locomotives. This is the principal reason why the use of microcomputers is still not widespread in railroad locomotives.

Taking this into consideration, researchers from the All-Union Scientific Research Institute of Electrical Machine Building [VElNII] designed a special on-board microcomputer. It can withstand high vibrations and perform at temperatures from -60° C to +60° C. In addition, thyristors of the inverse-rectifyer transformer can be controlled, and the optimal operating mode for the main equipment on each carriage can be selected. The number of microcomputers in each locomotive is equal to the number of carriages; all of them can then be controlled from one engine. Connections between individual microcomputers and the engineer's controls and between locomotive units operating under many joint controls are made by a four-wire control cable; this replaces the usual 400-wire control system. It greatly saves on installation wire and reduces the time necessary for this work. Once they are connected to the cable of the locomotive's signal system the on-board microcomputers receive track information along the sector which the locomotive is

travelling at that particular moment. This allows selection of the optimal operating mode.

The first experimental on-board microcomputers for locomotives were designed in 1982. Tests so far have been successful; next they will be installed in electric locomotives for road testing.

9964
CSO: 1829/334

LACK OF REPAIR FACILITIES, PARTS FOR LOCOMOTIVES ON BAM

Moscow GUDOK in Russian 7 Jul 83 p 2

[Article by Ya. Zabara, GUDOK correspondent: "Why Locomotives Are 'Limping Along'"]

[Text] The editorial staff has received a letter. Those who wrote it--machinists from the Urgal'skoye division on the Baykalo-Amurskaya Line [BAM], comrades Kislitsin, Pika, Babenchikov and their assistants--pose the question: "Just where can locomotives on BAM be repaired?" They write that, "We ask this question because there are no repair facilities on the eastern division of the line, and TE3 diesels have to be sent by TR-3's to the locomotive depot at Obluch'ye Dal'nevostochnaya. But there the work is very poor."

The authors cite specific facts. TE3 no. 4771 was "restored" in such a manner last year that it still can't be used. And the same thing happened with TE3 no. 5316.

I showed the machinists' letter to workers at the Dal'nevostochnaya Locomotive Service Depot and to the assistant chief of the Obluch'ye Repair Facilities, A. Plechev. They didn't attempt to refute the facts but showed documents relating to the repair of both engines.

The first of the two was cold when received in Obluch'ye. The diesel in one section was dry, for the fuel apparatus didn't work. It was necessary to replace 20 fuel jets, the storage battery, etc.

Locomotive no. 5316 had only one working unit when it arrived.

Home depots for both locomotives had taken off everything they could and reinstalled such equipment that even the repair depot couldn't fix. This of course complicated the work of the repair crew.

Yet still both locomotives returned to the Urgal'skoye division under their own power. By the way, one of the writers of the letter was present when locomotive no. 5316 was repaired: machinist Pika. He accepted it for repairs.

We must be frank: locomotives made after the TR-3 series quickly break down because of the way engineers handle them. A list of that which had to be placed or rebuilt on TE3 no. 7371 contains 33 items. In spite of this, the locomotive was repaired. Yet shortly afterwards it returned with four damaged cylinder bushings. This happened because of a discharge of water. Could this really have happened if train crews took care of the equipment?

I won't begin to claim that the writers of the letter are slandering the Obluchenskoye Depot. The quality of repair work there is really poor.

Why? Well, to start with, the depot hasn't enough repairmen; in fact, the depot has felt this need for a long time.

And then we just cannot forget the strange actions of the line's previous managers. The Obluchenskoye Depot was to be closed then--even the work brigade was given the word. Obviously many workers left the enterprise.

And one more event occurred: the eastern division of BAM was opened. Some 30 qualified workers transferred over to the new line.

To replace these workers now is not so easy. Still if the depot had enough housing for workers, then everything could be straightened out. But it was in 1980 that the last house was built. Almost 200 people are still waiting in line.

At the time when the depot was to be closed, one of its shops was transferred to another administration. The depot thus lost a significant part of its work area. And the situation was made much more serious when the 2TE10B locomotives made their appearance on the line. The depot had but a few repair stalls in which to service dozens of locomotives.

Obluch'ye didn't even know that they would have to repair the TE3 locomotives on its line as well as on BAM. Special shops for this purpose were built in Komsomolsk on the Amur but they weren't ready in time. Repair facilities had to be quickly rebuilt, and, as everyone knows, hastily done work is no good.

The work collective fulfilled only 57 percent of planned repair work on the TR-3's. Norms for locomotive standby times in shops were exceeded by a factor of 1.5.

Repair work on the TR-3 is being delayed for other reasons. Dal'nevostochnaya doesn't even have enough spare parts for its own engines, and these spare parts must be shared with its neighbors. In an application by Dal'nevostochnaya to its material and technical supply agency, it claimed that only 80 D100-01-101 bushings were received from the supply available to BAM, when in fact 500 are needed. There is also a shortage of outer pistons, face shafts and grooved bushings.

Starting in 1983 Dal'nevostochnaya Railroad has been sending one telegram after another to central directorates of the Ministry of Railways with requests to share spare parts for BAM locomotives on the basis not of

distance covered by locomotives but rather on complete interchangeability among road junctions. These claims correspond to order no. 10Ts issued by the Ministry of Railways on February 16, 1981.

Of course there is just one response: materials are allotted to the road on the basis of spare parts usage. But this is only true when the locomotives are run properly. The TE3's are so badly in need of repairs that workers at times don't know at what end to begin the repairs. The locomotives must either be replaced or undergo extensive reworking.

These are the conditions in which Obluch'ye workers find themselves, conditions that are extremely irregular. It is time to assist the depot to build worker housing, to expand the work area and to ensure a supply of spare parts.

9964
CSO: 1829/334

BRIEFS

NEW LASER EQUIPMENT--Leningrad--Tests have been completed on a laser instrment that will help vessels pass safely through difficult parts of the Volga-Baltic route. The equipment was developed by river transport workers in conjunction with specialists from the Moscow Water Transport Engineering Insitute. Technical innovations introduced in the main northwest waterway make it possible to intensify the transport activity along this route and they maintain the constant rhythm of its operation. [TASS] [Text] [Moscow VODNYY TRANSPORT in Russian 18 Aug 83 p 1] 9967

NEW DREDGER--Gaaga--A new addition has been made to the Soviet fleet to specialized ships. The state flag of the USSR has been raised over a large, self-propelled dredger that was built to order for the Soviet Union at the Dutch "Ichts-Holland" shipyard; it has completed all its performance tests. The vessel was given the name "Dixon". There are plans to use it for a wide range of operations, including deepening river beds and many other projects. The "Dixon" will be used in the Ob River basin. This is the third such vessel built by the Dutch shipyard for the Soviet Union. Its sister ships, the "Crimea" and the "Taymyr" are already working on the rivers of the USSR. There is still another vessel, the "Apsheron", in line. The "Ichts-Holland" shipyard has strong commercial trade ties with the USSR. [By O. Pivovarov, TASS correspondent] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 19 Aug 83 p 3] 9967

NEW TUGBOATS--Cherpovets--Shipbuilders at the Cherepovets Shipbuilding and Ship Repair Works have started production of powerful tugboats. Yesterday the first vessel in the new series was put into operation. It is capable of moving barges with up to 16,000 tons of cargo along rivers. The new tugboat is distinguished from those built previously by its more powerful engine and its automated navigation equipment. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 23 Aug 83 p 1] 9967

NEW ARCTIC VESSEL--Yuzhno-Sakhalinsk--The "Okha," a new vessel of the Sakhalin Steamship Company, has started its first Arctic voyage. This is the first vessel in a new series built by Finnish shipbuilders at the order of the All-Union "Soyuzimport" Association. It is designated for use on the routes of the Northern seaway. A distinctive feature of the ship is that it is fitted with equipment for carrying out loading and unloading operations under the harsh conditions of Northern ports. There is an 18-meter long apron that joins the vessel to the shore and makes it possible to carry out loading operations with the help of

automatic loaders and conveyors. In the arctic this is quite an important advantage. [Text] [Moscow PRAVDA in Russian 25 Aug 83 p 6] 9967

NEW DIESEL ENGINE--Bryansk--The Brynsk Machine Building Plant imeni V.I. Lenin has completed testing of a new low-revolution 13,100 horse power diesel engine for ships. It belongs to the seventh generation of the "DB-26" diesel engine series. In contrast to its predecessors, this new engine is much more economicial: fuel consumption has been reduced by 12 percent. Over 1000 tons of liquid fuel can be saved by using this engine on a large-tonnage ship for one year. This has been achieved through a number of new design solutions introduced by the diesel production design collective under the leadership of the chief designer, S. Shelkov. Among these new design features are supercharging with a constant gas pressure in front of the turbine and an acceleration of the piston speed. The new diesel engine is one of the best machines built for installation on automated vessels. [By M. Sychev] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 31 Aug 83 p 2] 9967

ARCTIC FREIGHTER --Another large-tonnage freighter in the arctic class has been built in the GDR for the USSR. It has been transferred to the Murmansk Steamship Company. The ship has been given the name of a veteran of the Great Patriotic War and of the navy, the renowned polar captain, V. Vakula. The new ship "Captain Vakula" has completed its first arctic voyage; it sailed to the western region of the Northern seaway. Its course brought it into the Gulf of Ob. At Novyy Port the crew, led by S. Liberov, delivered almost 6000 tons of large-diameter metal pipes for builders working on the construction of gas pipelines. [By B. Georgiyev] [Text] [Moscow VODNYY TRANSPORT in Russian 1 Sep 83 p 4] 9967

NEW FREIGHTER--Petrokrepost'--The leading ship in the modernized series of the "Nevskiy" type has been built at the Petrokrepost Shipbuilding and Ship Repair Works. It embarked yesterday on its first voyage. It is capable of taking on board almost 1000 tons more cargo than its predecessors. [TASS] [Text] [Moscow VODNYY TRANSPORT in Russian 6 Sep 83 p 1] 9967

NEW SHIP PRODUCTION--Even though this large-tonnage ship is one of the powerful dry-cargo freighters of the "Nevskiy" type, it exceeds other ships of this type considerably in terms of its carrying capacity. The leading ship in the modernized series built at the Nevskiy Shipbuilding and Ship Repair Works has been added to the country's river fleet. It is capable of taking on board almost 1000 tons more cargo than its predecessors. The increase in carrying capacity was achieved by making the hull 12 meters longer. Leningrad TASS reports that shipbuilders in Petrokrepost are implementing a long-range program for modernizing their production. An unusual grain transport vessel is being built at the shipyard; it is to be used on the Neva River and is distinguished by its low profile. This makes it possible for the vessel to pass under the low spans of the Neva bridges, without having to wait for them to open at night. The shipyard has started series production of tugboats with 1500 horsepower. They are to be used for moving cargo along major rivers and they can move a "train" of barges weighing up to 16,000 tons. [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 6 Sep 83 p 1] 9967

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PORTS AND TRANSSHIPMENT CENTERS

IMPROVEMENTS NEEDED IN LENINGRAD SEA-RIVER GRAIN TRANSSHIPPING

Moscow VODNYY TRANSPORT in Russian 25 Jun 83 p 2

[Article by I. Tinkel'man, chief of the transportation and traffic service, and V. Yelkin, chief technologist, both of the SZRP [Northwest River Steamship Company]: "The Grain is On the Way" under the heading: "The Food Program, Transportation Provisions".]

[Text] Being actively engaged in the Food Program of the country, rivermen in 1981-1982 sharply increased the hauling of grain from the Leningrad maritime port. In 1982 river ships took out 602,000 tons. In 1983 it is planned to increase the haulage to 800,000 tons. One of the main problems in solving this not so simple task is the following. Allowing for the irregularity of the arrival of maritime and river ships, the caprice of Leningrad weather, and other reasons, the maritime port needs to provide for an average daily loading of grain onto river ships in amounts not less than 8,000-10,000 tons. In 1982 the port workers loaded 4,400 tons per day on the average. To increase the loading of river ships, the maritime port must organize loadings not at only one place as it has been, but at two places.

At present there is only one floating grain transshipping facility for loading river ships in the inner roadstead. The transshipment of grain in the outer roadstead by means of floating cranes or by relocating the grain transshipping facility does not provide the necessary productivity. The unstable Leningrad weather, especially in the spring and fall, often halts grain transshipment for an extended period. River ships can receive grain in practically any weather. Maritime port specialists have developed a design for an all-weather grain transshipping facility and have placed an order for it at the Kanonerskiy ship repair plant. This may solve the problem of grain transshipment in the outer roadstead in foul weather.

A substantial resource for curtailing the idle time of river ships being processed in the maritime port is an acceleration in preparing them to receive grain. River ships arrive in the maritime port, as a rule, with a cargo (mainly coal) and are positioned for loading grain after having unloaded coal at a maritime pier and having been cleaned, washed and dried. In 1982, ship idlenesses during grain loading amounted to 1,050,000 tonnage-days of which 500,000 were spent in preparing the ships of the fleet. The time losses from washing ships and from bad weather were especially large. In our opinion,

much idleness is due to the fact that in the maritime port, the rivermen do not have either the facilities for washing and drying the holds nor a permanent place for mooring the ships. Taking into account the ever growing amount of grain haulage from the maritime port by river ships, it is necessary to resolve, finally, the question of creating in the area of the maritime port a permanent complex for cleaning, washing, and drying the holds of river ships.

Great losses of time also occur in the acceptance of ships for loading grain by staff members of the State Granary Inspection [GKhI] service. It is not so much in the acceptance itself as in the waiting for GKhI inspectors. The organization of this unquestionably should be checked and improvements are seriously needed.

In the past navigation season, river ships had prolonged idleness as a result of the slipshod work of representatives of Minzag [Ministry of Procurement] and as a result, simply, of mix-ups in the orders for hauling grain to specific points in the country. Frequently, already loaded ships stood by for days awaiting more exact information on destinations and receivers. In our opinion, better planning of the hauling of grain can substantially reduce idleness in the river fleet.

What would seem to be the connection between unloading coal and loading grain? It proves to be straightforward. An improvement in the unloading of coal being delivered in the maritime port by river ships for the needs of the Leningrad TETs would also be a resource for increasing grain haulage. As is known, coal arriving in river ships is taken out of the maritime port by railroad. Over the whole history of hauling coal, the railroad men of the Novyy Port and Avtovo port-side railroad stations have not once delivered the necessary number of rail cars. In 1982, above-normal idleness of river ships because of a lack of rail cars amounted to 131,000 tonnage-days. The feeding-in of the fleet to load grain was correspondingly delayed. It is necessary to radically improve the organization of the unloading of coal from river ships at the maritime port. The railroad men must create constantly alternating trains and not break them up during the whole navigation season. Rivermen need to expand the along-the-rails intermediate storages to such a degree as to receive at one time 20,000 tons of lean coal and 10,000 tons of gassy coal.

Riverships hauling grain from the maritime port are not moved and do not operate in a vacuum. The efficiency and productivity of their work are influenced specifically by the circumstance that in addition to the ships being processed at the piers, a large number of ships of the MRF RSFSR [Ministry of the River Fleet of RSFSR] which are for mixed, river-and-sea, navigation pass through the maritime port. The Northwest River Steamship Company in recent years has accomplished a number of measures to reduce idlenesses in the cargo fleet at the Leningrad transshipment center. In an agreement with the maritime port administration a position of captain of the river port was created which takes on the function of reviewing the ships and scheduling arrivals and departures to sea. This has reduced river ship idlenesses substantially - by 250-300 tonnage days.

For these same purposes, the Steamship Company together with the Baltic Maritime Steamship Company has developed an operational order for mutual information about the arrival of MRF RSFSR ships in Leningrad and their departures. Specialists of the Northwest River Steamship Company consider that for further elevation of the effectiveness of utilizing the fleet and reducing the idlenesses of river ships in maritime ports, it is necessary to conclude a general agreement between the MMF SSSR [Ministry of the Maritime Fleet of USSR] and the MRF RSFSR in which the fulfillment of a specific set of reciprocal services is considered, taking into account the mutual material responsibilities of the enterprises of the two ministries. The question of the bunkering of river ships in maritime ports has been awaiting solution for a long time. Unwarranted idlenesses for this reason, especially in winter time, are rather large.

Navigation on the waterways of the northwest is going on at full speed. The hauling away of the current harvest from the basins of the Volga and Danube rivers is not far off. Therefore, with necessary brevity, we have presumed to touch upon the problems connected with the transportation operations.

According to the plan for this year, 210,000 tons of grain must be received in Leningrad alone. The hauling away of this grain will involve ships of the Volga association and our steamship company. According to the scheduling of the MRF RSFSR, our steamship company should prepare 21 ships of the "Volga-Don" class for hauling grain along the internal waterways of the country. At present all those ships are ready to haul grain. But it is right here, according to experience in past years, that a problem arises in Leningrad.

River ships bringing grain from the Volga leave it at the specialized pier of the Leningrad Grain Products Combine imeni S. M. Kirov which is on the Obukhovskaya Oborona avenue. The equipment on this pier has been obsolete for a long time and physically and materially it does not meet modern requirements either in productivity or reliability of operation. The pier is able to receive, at the most, 2,000 tons of grain a day. This is clearly insufficient. Then, at the beginning of the summer navigation or at the end of it when nighttime air temperatures become negative, the pier will cease to operate - the obsolete equipment breaks down.

After many years of our requests and demands, at last, a project has appeared for the modernization of the pier. Precisely speaking, it is a project for the partial modernization of it. It has been approved and the work should be completed in the fourth quarter of this year.

But this is a split solution, a half measure. After this modernization, the pier will be able to receive grain during moderately negative temperatures but its productivity and reliability will remain as before. To bring the pier up to a condition satisfying today's growing demands in the haulage of grain by water, still another modernization will be required which has been talked about for a long time. But it is proposed to do this work only in 1984-1986. And the current Five-Year Plan ends in 1985.

Speaking about the hauling of grain by the river fleet, it must be said in conclusion that according to an initiative by the Steamship Company, the Leningrad TsTKB [Central Engineering and Design Bureau] of the river fleet has designed a modernized "Nevskiy" class series of cargo motorships. For the first time in history a specialized grain-carrying river ship will be built having no equal in domestic shipbuilding. Such a motorship - it will be named "Nevskiy-22" - already is under construction by the shipbuilders of the Nevskiy shipbuilding and repair plant.

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PORTS AND TRANSSHIPMENT CENTERS

L'VOV-BUILT LIFT TRUCKS FOUND DEFECTIVE IN PORT USE

Moscow VODNYY TRANSPORT in Russian 7 Jul 83 p 2

[Article by special correspondent V. Bezuglyy: "From Conveyer.... to Scrap".]

> [Text] Six lift trucks, model 4014 produced in August 1982, were presented to the examiner for inspection of workmanship and completeness. A test of starting the engines was made - all six specimens failed to start..... The lift trucks have production defects and are not suitable for use, they do not meet specification TU -37-001-137-80. Reconstructive repair is required.
>
> (From the report of inspection No V-187 of 30/09/82 of the Kherson Bureau of Merchandise Inspections.)

It stood in the inner port garage for mechanization of the Kherson maritime commercial port. Everything was scarred and scorched as if after a skirmish with a hot fire. Electrically welded seams and black blots of burned paint literally had not left a bright spot on the lift truck. And the raised hood seemed like the jaw of a huge mouth screaming from pain.

The whole gloomy picture provoked very contradictory sensations. On the one hand, there is pity for the new machine, which has not yet worked a minute, and which had been delivered from the plant to the port already sick, crippled, poorly designed, and haphazardly assembled in L'vov. And the weld joints and scorches - these are the visible traces of the reconstructive repairs which have been going on now for more than half a year.

On the other hand, there was indignation at the actions of those who are responsible for the bad workmanship at the L'vov Industrial Association "Avtopogruzchik" of the USSR Ministry of the Automotive Industry.

Here is what an engineer of the department of mechanization of the Kherson maritime port said:

Over the past two years we have received 16 Model 4014 autolift trucks. And all of them had production defects and all underwent or are still undergoing reconstructive repairs. Here before you is one of the defective lift trucks. On the average, on one machine, we are spending more than six months of tiresome,

tedious work. This is very much of an imposition on us. Also the mechanics do not have the qualifications for such work. In addition to everything else, we pay for correcting the plant's bad work at a doubled rate of pay because people do not want to punish themselves for somebody else's sins.

Thus, instead of putting a new machine to work at once, with great difficulty it is "brought to its senses" in the organization which has been called upon to carry out transshipment operations but not with reconstructed machines. How useful this equipment could be on the piers - taking onto its iron shoulders a ponderable portion of the heavy work of the dock workers! And the machines could be so, but, on inspection, they are not.

The port of Kherson and the Bureau of Merchandise Inspection have voluminous documentation describing 136 (!) different defects or the absence of parts and instruments on only six lift trucks.

"Just you look,"said the exasperated engineer-mechanic of the garage, V. Goncharov, showing the framework of the lift truck -"instead of quality welding, everything is fastened haphazardly! In the driver's cab, the devil himself would break a leg, and they even "forgot" to put in the seat! All the hydraulic line connections leak oil. The hydraulic clutch is unreliable and weak. All six of the ill-fated machines arrived under seal but on two there were no certificates, on others no instruments, and on all of them various regular equipment was missing."

"And isn't it barbaric," said repair mechanic V. Kulik joining the conversation, "for bolts to be hammered in with a sledge hammer? Try to take apart a subassembly after that! In the driving axles and bosses there is not a gram of grease. And in the gear wheels, metal shavings were discovered. What can you call all this?"

The display of defects continues for a long time. Here, like a disarranged hair dangles an unsecured wire. In the bolt holes, there are no threads. Stamped parts have sharp burrs that injure the hands of the mechanics. The hood "shoots up" on powerful springs, and for safety reasons, it must be propped up during maintenance work with a strong stake, and so on.

But something must be said about one design flaw in particular. Complaints have come to the port administration from drivers of the new machines about being poisoned by exhaust fumes. An analysis was performed: carbon monoxide was above normal by a factor of 18 to 20! The repairmen were forced to extend the exhaust pipe further away from the driver's cab.

"I would very much like to know," asked mechanic V. Kulik, "if there is any worker pride or conscience at the Lvov enterprise? Don't they see what they're doing there? And what's OTK [Department of Quality Control] doing? Well, one very well might not notice a driven bolt, metal shavings in the bosses, nuts in the engine cylinders, or the absence of lubricant. But all the remaining bad workmanship -- it's obvious! They don't notice it? Or don't they want to notice and just push to meet the plan? Happily for them, what they produce is in short supply and it's taken without a looking-over."

Unfortunately, so it goes. And the matter is taken very seriously here. If it were only a question about unfortunate Kherson lift trucks, it would not be so great a misfortune. Who is without sin? Having botched it, they could at least apologize, correct the faults, and the business would be at an end.

But the bleak reality is that things are not going as they should. Judging from the worried calls from our maritime ports alone (and similar calls are going out from all receivers of the lift trucks!), the L'vov Industrial Association "Avtopogruzchik" has been turning out poor work for a long time.

In March last year the management of Minmorflot [Ministry of the Maritime Fleet or MMF] addressed a letter to the deputy minister of the automotive industry of the USSR, I. Vasil'yev. It reported, specifically, that the MMF had conducted an analysis of the performance of lift trucks produced by the L'vov association. Recently a sharp deterioration in their quality had been noted. From the reports of 15 maritime ports, lift trucks are being delivered that are not fully completed and that have many defects connected with manufacture and assembly. Machines being received from the plant at maritime ports have had to undergo partial disassembly, adjustment, and, in some cases, routine repairs about which complaints had been sent repeatedly to the address of the plant.

As reported to us at the MMF, an answer to this letter , despite reminders, has not been received. But, shortly thereafter, came an invitation to send an MMF representative to a meeting of the board of the USSR State Committee on Standards [Gosstandart] on May 27th 1982. There, they considered the question: "About the results of a comprehensive examination by the L'vov Center for Standardization and Metrology of the L'vov Industrial Association "Avtopogruzchik" of Minavtoprom [Ministry of the Automotive Industry or MAP] on the matter of observance of standards, technical specifications and quality of articles produced."

In the documentation for the check, everything is neatly laid out, and the bad workmanship has been given a precise and identical assessment. According to this examination which had been conducted in 1982 and earlier, the quality of manufacture was at a low level because of violations of the GOSTs [State Standards], violations of technological and personnel discipline, and insufficient exactingness by the OTK. Up to 30 percent of the production operations examined were being done with violations. Because of the low organization of the production sector, incomplete and unadjusted systems were leaving the conveyor.

The low technological and personnel discipline and low quality of manufacture of the lift trucks was confirmed at the operating stage by bodies from Gosstandart. Thus, in the port of Odessa in 1981, losses because of above-plan repairing of L'vov machines amounted to 60,000 rubles. Over the past three years 29 lift trucks went out of service before the expiration of the guarantee period.

For the first quarter of the past year, only 28 claims on 107 lift trucks were accepted by the plant. There were cases when, for poor quality manufacture of machines sales were interdicted for a whole consignment of lift trucks, and economic sanctions were imposed.

Such are the affairs... And by the way, what is so astonishing here is whether at that same board of Gosstandart it was noted that the Industrial Association "Avtopogruzchik", among other things, has delayed the construction of a new shop. The ministry did not resolve the question about creating a leading organization on state testing of lift trucks. Although these machines are on the list of the principal products of the Ministry of the Automotive Industry, it does not have a sufficiently complete program of comprehensive standardization for them and that is why the proper technical level of this product is not being defined.

At this same board it was noted that preparations are being made for producing new models of lift trucks which have been developed by the leading special KB [Design Bureau] of MAP and which will replace the present machines. Prototype of models 4085, 4091 and 4092 have been developed, tested, and recommended for serial production. The development of the construction documentation for model 4085 has been delayed. But the technical assignment for this model had already been approved in 1977. Moreover, in delivering it for production, many importent tests on this model were not conducted. So, it is not difficult to foresee the future of the new machine if the matter goes on as it is going today.

Troubled by the worrisome situation, the L'vov obkom and gorkom of the Communist Party of the Ukraine, with the participation of the local Center for Standardization and Metrology, developed a comprehensive program for the years 1981-1985. The purpose of it is raising the quality of the lift trucks, creating conditions for their stable production, gradually replacing old models with new ones, and improving the organization for production. The developed program, however, does not, in full measure, solve all the problems of the technological retooling for production which, to a great degree, belongs within the competence of MAP.

Such was the situation with the low quality production of lift trucks almost a year ago. What has changed since? In assembling the material for this article we proposed to the MMF to inquire about it at any of the maritime ports of their choice, not counting Kherson, where they themselves had visited. And here came the answers from Leningrad, Murmansk, Riga, Odessa, Kaliningrad, and from the port services of the Sakhalin Steamship Company. And again the flow of complaints, complaints, complaints.

We will present only one of them: "The port of Odessa over the past year received 60 machines. In order to put them to work it was necessary to completely disassemble them and to revise and replace some parts. Much could be said about the fact that on lift trucks, not gasoline, but diesel engines are needed or gear permitting the use of bottled gas should be included in the outfit. The manufacturers know about all the breakdowns, but they do not take any corrective measures. They all promise to do it in the future."

So - in the future ..... It would be good,as it is said, in the forseeable future. Meanwhile, in many ports of the country L'vov lift trucks go out of service daily for one reason or another. And on and on go the expensive repairs to them, the end of which is not in sight.

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PORTS AND TRANSSHIPMENT CENTERS

IL'ICHEVSK DOCK WORKERS AHEAD OF PLAN FOR PIPE SHIPMENTS

Moscow GUDOK in Russian 26 Jun 83 p 1

[Article by GUDOK correspondent M. Gorbis: "At Speed"]

[Text] Il'ichevsk's dock and railroad workers shipped the last of the pipe for the Urengoy-Pomary-Uzhgorod gas pipeline three and one-half months ahead of schedule.

The sea had calmed following an overnight storm and now appeared motionless in the distance. But the moorage at the Il'ichevsk maritime port now began to teem with activity. The diesel-powered Parfentiy Grechanyi had no sooner moored when the enormous 12-meter sections of pipe began to be reloaded from its decks onto the waiting railroad cars. Dockers of the communist Anatoliy Rotar's brigade worked quickly and expertly.

Efforts like this made it possible to transship almost 20,000 tons of pipe almost four days ahead of schedule. The fund of practical experience accumulated by this brigade of Komsomol youth was, of course, a factor in the achievement of this success. It has specialized in this important job for three years now.

Working together with the supervisor of their combined traffic-control shift and Il'ichevsk station's switching controller, USSR State Prize laureate Vladimir Kuriy, the dockers here have been able to upgrade the methods and procedures they use in the transshipment of large-diameter pipe. Now, for example, an empty car is not inspected at dockside as before, but rather directly at the station itself. There is, accordingly, no more time wasted on gathering up the "wounded" from the port facility and no more need to divert switch engines to do this kind of work. There have been other innovations as well. While three years or so ago the loading of 100 cars a day was considered something of a record performance, we are today seeing as many as 150 and 180 cars loaded in a day.

Local dockers and railroad workers have addressed an appeal to all young transport workers in the Ukraine having anything to do with the movement of cargos for the Urengoy-Pomary-Uzhgorod pipeline to organize competition under the slogan "Move shipments for the gas pipeline at speed in good condition." This initiative has received the approval of the central committee of the republic Komsomol organization and support on the part of many working collectives.

The Il'ichevsk workers themselves resolved to accomplish this extraordinarily important transshipment task at least three and one-half months ahead of schedule and summoned their colleagues in Leningrad to accept the challenge. And they were as good as their word: Il'ichevsk workers shipped out over 700,000 tons of pipe and 100,000 tons of equipment for the transcontinental gas pipeline.

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OSETROVO PORT BEHIND SCHEDULE FOR LENA RIVER SHIPPING

Moscow EKONOMICHESKAYA GAZETA in Russian No 27, Jul 83 p 14

[Article by V. Seseykin, Irkutsk: "Lena Navigation Doesn't Wait"]

[Text] Plans call this year for several thousand carloads of a variety of cargoes to be shipped through the port of Osetrovo into Lena navigation. These cargoes will include everything needed to support the life of the people living throughout the vast expanses of the north—from tractors to needles, fuel to mineral fertilizers, foodstuffs to children's toys.

Roughly a thousand cars have arrived via the Eastern Siberian Railroad and collected here in the freight freight terminal itself. In an effort to accommodate the wishes of the river transport workers, USSR Gossnab has taken pains to see that a number of suppliers delivering shipments which were the most laborious to handle from the point of view of transshipment from the rail transport system to riverine transport shipped these cargoes out early (cargoes such as flour, mixed feed, etc.). The port people were counting on being able to unload the boxcars coming in during the prenavigation season in a leisurely fashion, make these cargoes up into packages and then load them onto the ships when the navigation season came.

But, alas, things didn't quite work out this way. The port has not been able to handle the flood of incoming shipments. Port workers were able to unload a third of each day's arriving cars during April and May. During May, though, they unloaded 120 cars a day instead of 240. The situation at the freight terminal improved somewhat in June; but more freight trains are arriving, and the number of cars standing idle has yet to drop.

The old-timers among the transport workers here can remember how the Lena river shipping organization used to manipulate its workforce so as in the early spring to transfer people from ports which had not yet restarted their operations to work at Osetrovo. This help was late in coming this year, though; it started to arrive only at the end of May and early June. There have been some other slip-ups as well. The open storage areas during the prenavigation season remained unprepared to receive incoming freight shipments.

The river transport people don't have it easy. They have only the three short months of the navigation season to move a great volume of cargo to the various transshipment points on the Lena and its tributaries. The collective at the

shipping company has a rich fund of practical experience to draw on and is capable of handling this responsibility successfully.

The operations here involving the transship of freight from the rail to the river transport system have to be drastically improved. Navigation doesn't wait. The port at Osetrovo is one of the most important on Siberia's rivers and requires special attention on the part of the RSFSR Ministry of the River Fleet.

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PORTS AND TRANSSHIPMENT CENTERS

VYBORG PORT, RAIL WORKERS FAULT EACH OTHER FOR SHIPPING DELAYS

Moscow VODNYY TRANSPORT in Russian 5 Jul 83 p 1

[Article by G. Veretennikov, superintendent of the port of Vyborg, and V. Yeliseyev, special VODNYY TRANSPORT correspondent: "Missing Flatcars, A Clear Signal"]

[Text] More than 25,000 tons of pyrite headed for the Fosforit combine in Kingisepp had piled up on the docks at the port of Vyborg. There isn't any way to get it there by water. So the Vyborg railroad was supposed to send 264 flatcars to the port during the first 12 days of June. But according to the deputy superintendent of the port of Vyborg, V. Galkin, as of June 13 not a single one of these cars had been sent.

Twenty-five thousand tons of pyrite—that, in the view of S. Yurchenko, deputy superintendent of the Leningrad-Finland division of the Oktyabr'skaya Railroad, is not really a whole lot for the port of Vyborg.

But the fact is that the docks here have become so clogged with pyrite that the recently arrived diesel-powered Volga-Don 5033 has been waiting in the harbor since June 12 with 4700 tons more of it.

Our conversation had no sooner begun than A. Umanskiy, deputy head of the divisional traffic department, went on the offensive: "It's the port people themselves who are responsible; they're being slow in unloading pulpwood from the gondolas."

"But it's better to send flatcars for the pyrite anyway, isn't it. This, of course, would be the efficient thing, if you will...."

"But who told you you can't carry pyrite in gondolas?" Aleksandr Yefimovich Umanskiy replied in turn in some amazement.

So much for Aleksandr Yefimovich Umanskiy—but he's not the only voice of authority on the railroad, so it was only natural to listen to the expert views of Sergey Mikhaylovich Yurchenko, deputy superintendent of the Leningrad-Finland division of the Oktyabr'skaya Railroad for rail car services. The first thing he did was to back up his subordinate and declare:

"Let them be quicker about unloading their pulpwood and then load the pyrite in the empty gondolas."

"But what about the load trains [vertushki]? Why aren't there any load trains?"

"There'll be load trains."

But the question of why not a single one of the scheduled 264 flatcars had been dispatched during the first half of June thus remained unanswered.

It would be a good thing if officials of the Oktyabr'skaya Railroad not only read this criticism, but, what is more important, took the trouble to explain how it is proposed to organize operations within the Leningrad-Finland division to prevent situations like this from developing again.

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